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A RECONSIDERATION OF THE DYSPEPSIAS.*

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The subject of the dyspepsias, or functional disorders of the stomach, cannot be pointed to as one of the outstanding successes of modern medicine. Yet it is an important subject from the frequence of stomach complaints without evidence of organic disease. Many cases are benefited by medical advice, but probably all of us know of patients who have passed from one doctor to another and still complain. The physiology of digestion, on the other hand, is a subject upon which a great deal is known. We clinicians have not kept pace with the physiologists in working out the abnormal physiology or clinical pathology. We know much about the normal working of the machine, but have not yet worked out so well a practical trouble chart to enable us to identify, and correct, the faults when things go wrong. In saying this I have less in mind the organic diseases of the stomach—ulcer, cancer and pyloric stenosis. These are relatively well understood. We are able to make positive diagnosis of these, at least in their outspoken stages. We know that ulcers can be improved by certain treatments; that cancer can be palliated in certain ways, and that its cure must wait for the solution of the general problem of cancer; and that pyloric stenosis can be benefited by surgery. But the dyspepsias lying outside of these classes are less well known. This may be because they are only causes of discomfort and not fatal or disabling, except as they may contribute to the uncertain etiology of ulcer and cancer. Still it is unfortunate that we have not gained more control over them.

This fact has led me to attempt a reconsideration of the whole subject of disorders of gastric function, in the hope that it may bring to light some more definite conceptions, and lead to more effectual treatment.

I must admit at the outset that I am about to describe conclusions which are only tentative, not backed by scientific proof. But the situation is this: The clinical case is less adapted to exact observation than the laboratory animal; this being the case, it seems to me desirable that we should grasp at any suggestions from any sources that may be at hand, and at least test them for possible value. Many of the most reliable methods of medical treatment have been established without previous scientific explanation, and what we as clinicians most desire is an increase in our stock of measures that we can rely on to benefit our patients, even if we do not know with certainty why they succeed. To me the line of thought that I am about to describe has raised new possibilities, and it has seemed to me that patients treated according to these possibilities

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have done better than they otherwise would have done.

The headings under which functional gastric disorders are described in the standard text-books of today are essentially the same as those in vogue when I was a medical student twenty years ago. They are based chiefly upon chemical tests of gastric contents obtained by stomach tube. They have been allowed to stand in default of any better headings to take their place, in spite of the fact that most thinking clinicians have been disappointed in their hopes of finding complete explanations of their cases by means of gastric analyses.

The chemistry of gastric contents is now recognized to be but one source of evidence,—one to which we must pay some attention, from lack of more direct methods of examination, but still one with many limitations. It is a little as if we were forced to make diagnoses of diseases of the nasal cavity by the examination of nasal secretions without direct inspection. Disorders of motility as well as those of secretion were also studied by stomach tube methods, particularly in the early days of gastro-enterostomies some fifteen years ago, and more recently by the fractional tests. X-ray methods have given us additional light on these, but the x-ray's contributions have been less valuable in functional than in organic diseases. In the practice of today it is too often the case that the physician at once orders a gastro-intestinal x-ray series and, when this is reported as "stomach and duodenum negative," sets the patient down as one of "gastric neurosis," and treats him empirically as would have been done a century ago. Recently there has been a tendency, following certain teachings of physiology, to emphasize the psychic influences as bearing on digestive disorders. These are of unquestionable importance, but in my opinion should not be allowed to exclude the consideration of other factors. Other facts of physiology also raise the possibility that internal secretions may be brought into relation with some disorders. But in all these attempts to classify patients complaining of their stomachs in accordance with objective features, from chemical tests to psychic deviations, too little effort has been made to bring all available evidence, including a careful history, to bear, so as to try to connect the patient's symptoms with definite abnormalities of physiology.

I have, therefore, tried first to fix clearly in my mind the chief facts of the physiology of normal gastric digestion, cleared so far as possible from confusing details, and, with these facts in mind, to go over one by one the common abnormal sensations and objective findings from all sources in cases of dyspepsia in the hope of arriving at more definite conceptions as to the origin and mechanism of production of these symptoms. As a result, I have evolved certain theories which seem to me plausible and of value if they are true. Let me repeat that they are still far from scientific proof that that I am describing them at this stage only in the hope that you will be interested to hear them as possibilities, rather than as established facts, and that you may be willing to aid me in putting them to the practical test.

The stomach is a bag-like organ, provided in order that meals taken at convenient intervals may be stowed in it, to await the gradual completion of their digestion and passage on to the intestine. It is attached to the lesser omentum on its lesser curvature, but this attachment is normally under little tension, since most of the weight of the stomach and its contents is supported by the gas-distended coils of intestine below. It is lined with a mucous membrane which, as Beaumont showed nearly a century ago, is pale while at rest, but pinkish from increased circulation during digestion. It has muscular coats, most active in the pyloric portion, and the whole is covered with peritoneum. Food enters by the cardiac orifice by deglutition, and chyme leaves by the pylorus in jets under a special mechanism to be described later.

Fasting, the stomach is contracted to small volume, but still contains air and a little fluid. When food is received by deglutition, the stomach automatically expands by relaxation of its muscular coat, so that there is no increase in internal pressure. For normal digestion, the food should have normal preparation for entering the stomach by being masticated and mixed with saliva, until it is a semi-fluid pulp, easily miscible with gastric secretion. The mass of the meal gravitates to the lowest portion of the stomach, and above the horizontal level of its surface lies the so-called "gas bubble," composed of air previously in the stomach and air from froth swallowed with the food, together with small amounts of gases of fermentation. I want to emphasize the normal presence of this air-bubble, which I shall have cause to mention later. The fact that most x-ray plates are taken with the patient horizontal, so that the air-bubble is hidden, causes us sometimes to forget its existence. After the entrance of a meal, peristaltic contractions appear in the pyloric portion. The pyloric portion also secretes pepsin-hydrochloric acid. Thus the contents of the pyloric portion are churned and digested, while the contents of the remainder of the stomach passively await their turn. The pressure within the stomach, particularly in the fundus, is only slightly positive. The automatic relaxation of the stomach as each bolus is swallowed prevents increase of internal pressure as a normal meal is ingested. But one point that I am attempting to establish is that a secondary mechanism exists to prevent elevation of intragastric pressure. I believe that the air-bubble of the stomach is provided for the useful purpose that if at any time intragastric pressure rises it can be relieved by the act of belching. Belching, when without effort, it seems to me, should be considered a normal process, serving to maintain normal intragastric pressure. Difficult belching, occurring only un-

der high pressure, I regard as an abnormality of this process, to which I shall return later.

The mechanism of the pylorus as described by Cannon is another subject to which I shall have reason to return. Briefly stated, the appearance of free hydrochloric acid on the gastric side of the pyloric sphincter is the signal for its momentary relaxation, so that a jet of acid chyme is passed into the duodenum. With the passage of this jet of acid chyme into the duodenum, the pylorus closes, and remains closed until the contents of the duodenum are rendered no longer acid, by neutralization of the acid from the stomach by the pancreatic juice, the bile and the duodenal secretion. Only when the contents of the duodenum are no longer acid can another jet of acid chyme pass out from the stomach. Thus the emptying of the stomach occurs through a series of momentary relaxations of the sphincter; and each relaxation can occur only when both of two requirements are met: first, there must be present free hydrochloric acid in the chyme on the gastric side, and, second, the chyme previously discharged into the duodenum must be no longer acid. It is true that there are certain probable exceptions to this rule, but that this mechanism is the rule seems well established.

The muscular activity of the stomach seems to be strangely subject to the influence of the emotions—as illustrated by Cannon's observations on cats in anger. This may be connected with the action of internal secretions such as adrenalin.

As to sensation from the stomach, it comes with surprise and doubt to most clinicians to hear evidence that the stomach is an organ without sensation. Seriously as we must take the evidence of Lenander and his followers to this effect, in clinical work it is evident to us all that in disease certain unpleasant or painful sensations seem to come from the stomach, and behave as if they originated in the stomach. This being the case, it is of little practical value to establish, as seems the best explanation, that the sensations which we have thought to come from the stomach really originate in the lower end of the oesophagus. For practical purposes, it seems to me just as well that we should consider that these sensations do come from the stomach.

Now with this skeleton outline of the physiology in mind, let us review the common abnormalities of gastric digestion, considering both the abnormal sensations of patients and abnormal findings of objective examination.

Ideal digestion should be completely without sensation. Few persons, however, are free from some sense of epigastric fullness after a heavy meal and a little belching without effort. These cannot be considered pathological.

But abnormal, according to its degree, is the sense of epigastric pressure that occurs in patients who complain of this epigastric pressure as a frequent source of discomfort, occurring not only occasionally, and not only after meals which they admit to be excessive. This sense of epigastric pressure is often accompanied by a desire to belch gas, but an inability to do so satisfactorily, or without violent exertion. It is often associated with involuntary jerking contractions of the epigastric muscles and perhaps of the diaphragm, allied to hiccough. It may or may not be accompanied by regurgitation; it may occur with acid regurgitation and pyrosis, but this association is not constant. My hypothesis is that this symptom is due primarily to a disorder of the cardiac orifice, which prevents what I consider the normal easy relief of excessive intragastric pressure by belching, so that the fundus is subjected either temporarily or habitually to undue distention. This I have been able to demonstrate in a few cases by manometric readings obtained by stomach tube. The exact mechanism, however, by which belching is rendered difficult is not clear. An exhaustive study of the cardiac orifice and of the lower end of the oesophagus has been made by Dr. Harris P. Mosher of Boston, who finds that the obstruction to the downward passage of food or of the gastroscope, previously attributed to cardio-spasm, is better attributed to pressure on the lower end of the oesophagus by the liver, the left crus of the diaphragm or by peritoneal adhesions. But these cases of difficult belching have no symptoms of obstruction to the downward passage of the oesophagus. Some cause of a valvelike condition, whether by kinking or by lateral pressure on the orifice would explain the situation more satisfactorily. This must be left for further study to solve. I wish however, to emphasize that this symptom of a sense of epigastric pressure with difficult belching is a common source of discomfort which has been strangely overlooked in medical investigation.

In contrast to the feeling of epigastric pressure is the feeling of weight or dragging in the epigastric or umbilical region. This is most common in persons of poor nutrition, especially in women with weakened abdominal muscles, diastasis of recti, ventral hernias, etc., and often demonstrable ptosis of abdominal viscera. There is a probability that this symptom is due to tension on the lesser omentum, from deficient support of the stomach below. Abdominal bandages often give a sense of relief, but a more rational treatment to secure continued improvement is to apply measures to increase the tone of abdominal muscles, and to correct the body posture. Operative repair of ventral hernias may be considered. While this symptom may occur alone, it is often accompanied by others, especially those symptoms that go with deficient, rather than excessive, gastric function, as well as by manifestations of general physical and nervous debility.

Pyrosis, or heartburn, is perhaps the commonest form of gastric distress. It is a burning sensation referred to the epigastrium or to behind the strenum, which in the minds of those

who have it is most consistent with an inflamed or irritated state of the lining of the alimentary tract, rather than with a muscular contraction or with tension on attachments. It is similar in quality and in position to the sensation felt when hot or irritant substances are ingested. It is similar in quality to the sensation of burning or excoriation or inflammation of the skin or of the more accessible mucous membranes. We know that it commonly follows the ingestion of chemical or physical irritants (spices, alcohol, hot fluids), or the presence of fermentation or of high acidity in the gastric contents. It is this symptom which is the most difficult to reconcile with the teaching of Lenander and Mackenzie that the stomach is not endowed with true sensation. A possible explanation is that the seat of this feeling is really the lower portion of the oesophagus to which is subjected the same influences as the lining of the stomach. At present it seems impossible to settle this point conclusively and finally. But whatever the true origin and mechanism may be, the opinion seems warranted that the symptom means that the lining of the stomach, and presumably of the lower oesophagus as well, is being, or has been, subjected to influences unfavorable to it by its contents, and that the symptom will usually be benefited if the contents are rendered no longer irritating, either by the neutralization of acid by alkalies, or by evacuation as by vomiting.

Readers of Beaumont's classic observations on Alexis St. Martin, made through the opening following a gunshot wound that resulted in a permanent gastric fistula, can hardly fail to suspect that this sensation is to be connected with the dark red congested appearance of the mucous membrane of the stomach that resulted from stronger mechanical irritation, or on one occasion was explained by the terse note, "St. Martin was drunk yesterday." Without positive evidence pro or con, I consider it probable that the symptom of pyrosis is to be taken as the manifestation of such an irritated or inflamed condition of the gastric and probably of the oesophageal mucous membrane.

Now following out this tentative belief, let us consider what can cause such an irritated or inflamed condition of the mucous membrane. Here again we must fall back on indirect evidence, since the states of irritation or inflammation which we are supposing must be limited to states of hyperemia not demonstrable post mortem:—suppurative or phlegmonous gastritis we know to be rare. By analogy with other mucous membranes we may suppose that the gastric mucous membrane may be affected by mild inflammations of the catarrhal type, by physical influences, heat, cold and mechanical injury, and by chemical influences. These possibilities receive support from clinical experience. We know that a tendency to pyrosis may occur in the acute slightly febrile disease that we call acute gastritis. with the onset of so-called catarrhal jaundice, in catarrhal inflammations of the nose and throat and in fevers. From physical influences such as heat, the stomach is largely protected, since burning hot and scratchy substances can seldom pass the oesophagus.

But by far the most fertile source of pyrosis seems to lie in chemical action upon the stomach of its contents. These chemical causes we may separate into two large divisions,—irritants ingested from without, and irritants developed within. Of the chemical irritants from without may be mentioned corrosive poisons taken by accident or by design, irritant drugs, strong spices and alcoholic drinks. By irritants developed within I mean the products of fermentation, and pepsin-hydrochloric acid in concentrations beyond the tolerance of the patient's stomach.

The first class, gastric irritations from irritants ingested, either once or habitually, can occasion no dispute. Irritation from fermentation is rarely of importance except in connection with pyloric stenosis. But cases complaining of pyrosis when the cause of the irritation seems to be pepsin-hydrochloric acid I believe to have been hitherto misunderstood. I shall return to them later after I have touched on other symptoms.

Pains attributed to the stomach are of three chief varieties, which I may call, for the sake of brevity, the ulcer-like, the cramp-like, and the dragging pains. The first, which I have called ulcer-like, for want of a better term, and from its frequent association with anatomically proved ulcers, is sharp and usually severe. Certain patients have agreed to its similarity to the pain that results from the disturbance of fresh wounds of the surface of the body. Its occurrence is closely related to that of pyrosis, of which it may perhaps be an extreme degree.

Cramp-like pains are as a rule clearly associated in the minds of the patient with muscular contractions or movements of the stomach—"cardiospasm" in connection with swallowing or belching, a general cramp in connection with vomiting, or a cramp-like pain to the right of the median line attributable to pylorospasm.

Dragging pains occur with distention or with gastroptosis and are merely exaggerations of the discomfort from sense of weight described above, and are probably due to tension on attachments. All of these pains are to be distinguished from those of gall-stones, appendicitis, etc., by their appearance, or aggravation, in definite relation to eating or to movements of the stomach.

Difficult or violent belching as a symptom has been mentioned. I neglected above, however, to speak of the noisy habitual belching that occurs in certain patients as an obstinate neurosis. This probably always is accompanied by air-swallowing or cribbing, although most patients deny that they are conscious of it. In one patient I have shown, by a tracing of intragastric pressure, that the act which at first seemed to be only one of belching was in reality a double action of suction and expulsion.

Regurgitation I believe to be the equivalent of belching, with the difference that for its occurrence the surface of the fluid contents of the stomach must have risen to cover the cardiac orifice. This may be the result of changes in position or form of the stomach, by distention from excess of non-gaseous contents, by pressure of organs below as in pregnancy, or by diminution in the volume of the gas-bubble. Simple regurgitation of unchanged food is of little moment, except as a sign of overeating. Regurgitation of contents tasting of fermentation are of little more importance, unless associated with other evidence of pyloric stenosis. Here antifermentatives of the betanaphthol class may be of some value, but more is to be expected from reducing diet, particularly in its fermentable elements, and attention to mastication. But of far greater importance is the regurgitation of irritant contents containing hydrochloric acid. This is usually accompanied by pyrosis—the familiar "sour stomach and heartburn." These are the presenting symptoms in perhaps the commonest type of severe dyspepsia. The patient eats at each meal as much as he dares, but regularly, soon after, follows the development of heartburn, with more or less belching and acid regurgitation. There is a continued period of misery, in which the patient is conscious that the contents of his stomach are hurting him, and he wishes that they could pass on. In milder instances, after an hour or so the wish is granted, and the patient is conscious that the offending contents have left the stomach and ceased to trouble him. In severer instances the patient takes sodium bicarbonate, and has temporary relief. If this is not at hand he induces vomiting, or vomiting may occur spontaneously, and after this he feels better. I want to dwell somewhat upon the point that the patient with sour stomach and heartburn feels that he is suffering from delay in the passage of the meal from the stomach; that acid contents are retained in the stomach and are the cause of his trouble, and that if they would pass on more quickly he would be the sooner relieved. This conviction is clear in patients' minds, and probably most of us have, at one time or another, had the sensation ourselves enough to agree with this conviction, that the distress accompanying sour stomach and heartburn would be benefited if the stomach could be made to empty itself more rapidly.

Nausea and vomiting are often considered together, and come prominently to mind when a list of gastric symptoms is mentioned. Still it is well to emphasize that nausea, and vomiting preceded by nausea, occur perhaps most frequently in conditions where the stomach is concerned only secondarily.

Nausea is to be regarded as a sensation of the central nervous system excited by a wide range of exciting causes: toxic, as in uremia, in pregnancy and in tobacco or apomorphine poisoning; reflex, as in diseases of the throat or labyrinth, etc. Nausea is frequent in circumstances which cause inhibition of gastric digestion, as in seasickness, migraine, disgust from sights or odors, and other emotional influences.

Vomiting, also, may be not primarily of gastric origin, as in brain tumor, and in the causes of nausea mentioned above. Vomiting associated primarily with abnormal gastric function may be divided into two classes as follows: first, vomiting associated with inhibition of gastric digestion; and second, vomiting due to the need of getting rid of harmful contents. As to the first type, I believe it to be a fact which will coincide with your observations in practice, that, whenever for any cause the stomach finds itself unable to make progress with the digestion of a meal, it gets rid of it by vomiting. This is the type of vomiting which follows overeating in children, or overeating in fatigue, pain or excitement. This vomiting is preceded by nausea, and the vomitus contains food unchanged by digestion. The second type of vomiting is the culmination of a period of pyrosis or pain, due to poisons, drugs, or excess of acid contents, and is usually the result of the patient's more or less conscious desire to empty the stomach. There may be little or no nausea; the vomitus is acid and irritating but undigested food is less in evidence.

The appetite is of considerable value as a diagnostic symptom. As a rule, although with exceptions, poor appetite goes with disorders of deficient functional activity, and good appetite with disorders of the hyperacid types.

Sodium bicarbonate is such a household remedy that "soda-relief" is a symptom often obtainable in history. When present it means one of two things—either relief by neutralization of acid, or relief by effects on the gas-bubble from its effervescence. Testing the effect of magnesium oxide is of greater value, since this can relieve only by the neutralization of acid.

So much for analysis of symptoms.

Physical examination gives less positive information in functional gastric disorders. The states of nutrition and of muscular development, the psychic attitude or temperament, and the condition of the teeth are of importance. Otherwise the examination is of value chiefly in excluding organic disease and non-gastric diseases which may give gastric symptoms—tuberculosis, syphilis, gall-stones, appendicitis, nasopharyngitis, pregnancy, nephritis, lead poisoning, tabes, etc.; also examination may reveal contributing causes of debility, such as gynecological and genito-urinary disorders.

The special tests of the laboratory and x-ray room should be made if possible. But in the case of tests of gastric contents, except for tests for bleeding ulcer, cancer, or pyloric stenosis, the results are to be taken only as contributory evidence in most cases. Occasionally complete absence of hydrochloric acid and of pepsin will reveal achylia gastrica. A few cases will show excessive amounts of gastric juice,—indicating

hypersecretion. Other cases will show deficient or high acidities in accordance with clinical symptoms. Others will show normal acidities in spite of clinical symptoms, or conflicting results may appear on different occasions. In the sour stomach cases there may be a delay in emptying. Excess of mucus may be of importance. But I feel that efforts to make diagnoses according to gastric contents rather than by general clinical pictures have often confused rather than cleared our vision.

In the stools, aside from tests for occult blood in possible ulcers or cancers, the chief test is inspection for evidence of imperfect mastication. I once found almost whole pickles in the stool of a girl who said she was careful about mastication.

X-ray tests as at present applied are of value chiefly in the detection or exclusion of organic disease. They are, moreover, beyond the reach of many patients. Great as has been the service x-ray methods in gastric diagnosis, I must protest against the present tendency to order a barium series in all gastric cases before full consideration of, or to the neglect of, other sources of evidence. In the future, however, I hope the x-ray examinations may be of additional use, if used less mechanically, and read with more attempt to correlate findings with the individual clinical features of each case.

So far, in a somewhat rambling fashion, I have mentioned and commented on single symptoms and abnormal findings.

Now, if you have been able to follow my somewhat disconnected discourse, let us consider whether, in the occurrence of these symptoms we may not find suggestions of abnormalities of function that we may recognize as fitting groups of cases, and that give hints as to their treatment. One such group I have already tried to point out—that characterized by epigastric pressure and difficult belching. This condition I have above attributed to a valve-like closure of the cardiac orifice. For my own use I have coined the name "valvular cardia" by which to refer to it. Marked cases of this are not common, although I have treated three very striking ones on my service at the Boston City Hospital this year. There was reason to suspect that habitual overeating may have been a contributing cause. Minor cases of this "valvular cardia" are fairly common, and may be little inconvenienced unless other disease is present, but may complain much from distress from this source when it occurs in association with "hyperacidity" or ulcer.

As for treatment, if the valvular action of the cardiac orifice is due to organic relations of the liver, the left crus of the diaphragm and the last portion of the oesophagus, we have at present no direct way of correcting it. If, on the other hand, kinking by pressure of a distended fundus is to blame, there is some hope of improving matters by avoiding such distention. Moreover, if we despair of influencing the cardiac orifice, our best course is to place the patient on a diet which will so far as possible obviate the need of belching,—and this, fortunately, is the same diet which tends least to distention of the fundus. To this end it is reasonable to give a diet which contains an adequate nutritive value in the smallest possible bulk of digestible substances, and, further, to provide that the day's total shall be taken in six divisions instead of three. In minor cases a simple plea for self-restraint in the amounts eaten may do much good. In more marked cases I have begun with starvation for from twelve to twenty-four hours to allow the stomach to contract to its resting state, followed by a régime of three small meals and three light lunches a day, composed of bread and toast, milk-toast, rice, cereals and baked potato with cream or a little milk, soft eggs, meat and fish (not fried), simple puddings and custards and the like, with emphasis on slow eating and thorough mastication. This plan when followed has resulted in improvement which later permitted a gradual return to a normal diet. In one case an immediate and marked return of symptoms followed a premature unauthorized departure from this régime.

In a larger, but less homogeneous, group, it seems to me that we can include cases whose disorders come under the general head of deficient gastric function. These are the cases that are apt to have a sense of weight or dragging in the epigastrium, anorexia, nausea, vomiting of undigested food, often with headaches and symptoms of general debility. They often show visceral ptosis and poor muscular development. Their gastric contents tend toward subnormal acidities and delayed motility.

For this group I would suggest the term "gastric asthenia," since the term gastric neurosis has been so loosely used in the past as to have lost its proper meaning and to include all dyspepsias without organic disease, and demonstrable subacidity is not sufficiently constant to justify naming the whole class for it.

These cases are often difficult to improve, but there are a number of directions from which they may be attacked with some hope of success. While each case is to be considered separately, as a group all are probably manifestations of a general debility which may be due to a variety of causes, some remediable. Cases with ptosis, poor posture or subnormal muscular development and tone may often be improved by orthopedic or physical therapeutic methods. Special causes of discomfort indirectly contributory, such as hernias, torn perineums, etc., may be corrected by surgery. The question of eye strain is always to be considered.

A change of environment, by a vacation or a visit, or a change to a more congenial occupation, may be followed by striking improvement. It is important to develop a mental attitude of cheerfulness and confidence; interest in a new recreation may help. The habits of life and eating are to be gone into carefully. Thor-

ough mastication is to be emphasized and three sufficient meals at regular hours each day are to be insisted upon, with regular light lunches between meals when there is undernutrition. For patients who do not eat in their homes, a good family boarding house is far better than a restaurant or lunch counter. The diet should be a general one composed of such articles as would be allowed a healthy older child; prejudices and experience of the patient may be consulted somewhat but not too much. In such cases bitter tonics before meals and dilute hydrochloric acid after meals may be of service, but more is to be expected from improvement of environment, habits, mental attitude, diet and general physical condition.

Achylia gastrica I class in this group for the purpose of treatment, except that proteins in the diet are to be restricted and selected with a view to ready passage of the stomach.

As a third group I class together what I consider cases of gastric irritation, under three subheads: catarrhal, toxic, and hyperacid.

Whether catarrhal gastritis, analogous to mild inflammatory states of the mucous membranes of other organs, is more common than we can prove is uncertain. It has been taught in the past that the diagnosis of chronic catarrhal gastritis is to be made only when there is a distinct excess of mucus in the gastric contents which is comparatively rare. Yet there are cases complaining of symptoms of gastric irritation that cannot be explained by the ingestion of irritants from without, or by excess of acid developed within. Such cases have sometimes been called gastric hyperaesthesia, but to my mind it is not disproved that some at least may be due to milder forms of catarrhal gastritis.

The treatment is a diet as free from irritant qualities as possible, and magnesium oxide or milk of magnesia sufficient to neutralize acidity when acidity symptoms are present. By non-irritant diet I mean a diet excluding three things. First, spices, pepper, and excess of salt or other strong flavors; second, coarse grained solid particles, such as green corn and string beans; third, substances which tend to stimulate acid secretion such as meat extractives and products of frying. Every mouthful should be masticated carefully and no meal should be large in amount.

Of states of gastric irritation due to irritants ingested, the best known is that due to alcohol. They are to be treated by cutting off the irritant concerned, a period of starvation or underfeeding, and then a gradual advance, through the bland diet mentioned above, to a normal diet. Bile preparations to be mentioned later, should not be given while alcohol remains in the stomach.

Fermentation as a source of gastric irritation is greatly exaggerated in the popular mind, beyond the probable facts. Probably most distress attributed to fermentation is in reality due to hydrochloric acid. Still vomitus with odors of acid decomposition is occasionally met. Lack of convenient clinical tests for acetic and similar acids may be the cause of our little knowledge of their occurrence. Where vomitus or matter regurgitated is described as having the taste of fermentative decomposition, the diet should be reduced particularly in sugars and sugar-containing fruits and fluids, including milk, and emphasis should be laid upon slow moderate eating and careful mastication. Pyloric stenosis is to be suspected until excluded by proper tests.

But by far the most important type of dyspepsia is the group complaining of sour stomach and heartburn where the condition seems to be one of irritation of the stomach by pepsin-hydrochloric acid developed within. These cases have commonly been grouped under the term "hyperacidity." Surgeons have shown that many of the severer ones have gastric ulcer, and it is probable in my opinion that this condition of hyperacidity is a direct step in the development of gastric ulcer. Still I am not convinced that ulcer is present in all. Certainly there are cases in which ulcer can not be demonstrated, and there are many milder cases in which exploration, or even bed treatment, will not be consented to or advised.

Let us consider again the symptoms and objective findings. The patient after each meal complains of pyrosis and often acid regurgitation. He feels that something is burning him inside, and that it is something which ought to pass out of his stomach by the normal route, but is slow in doing so. He gets temporary relief by swallowing substances which neutralize acid. He gets relief by inducing vomiting. The vomitus contains hydrochloric acid in high normal amounts; the vomitus is largely fluid so that it would flow out of the stomach readily if the pylorus would allow it to. Now why do these acid contents remain in the stomach causing distress, instead of passing on? May not the trouble be this: not an increased secretion of pepsin-hydrochloric acid, but rather a harmful mechanism by which pepsin-hydrochloric acid is hindered from passing out of the stomach, and is so forced to accumulate? May not the cause of gastric ulcer be the abnormally long contact of this digesting fluid with the mucous membrane, breaking down its normal immunity; and may not the failure of ulcers to heal be due to their being daily eroded by this fluid?

Such considerations led me some years ago to suspect an abnormal mechanism of the pylorus in these cases. Referring back to the normal mechanism which I have described we find that one signal for the opening of the pylorous is free hydrochloric acid on its gastric side. That requirement in these hyperacidity cases is obviously met. But the second requisite is the neutralization of acidity on the duodenal side. May not the fault lie here? The neutralization of acidity in the duodenum is affected by three

secretions: the pancreatic juice, the duodenal secretion and the bile. The first two we cannot greatly influence, but we know that the flow of bile can be greatly increased by the giving of bile or bile salts by mouth. I therefore made a trial of giving ox-bile in salol-coated pills to certain patients who had sour stomach and heartburn, only temporarily relieved by soda or magnesia. I was gratified to find that they soon became free or almost free of symptoms and could be kept so for long periods by continuing to take the ox-bile in reduced doses. Most of them were ambulatory cases of dyspepsia, not of great severity, but a certain proportion, from the severity of their symptoms, from history of hematemesis, or from the findings at previous operations, undoubtedly had ulcers. I published these results in June, 1913.[1] Later in the same year Glaesner[2] of Vienna announced similar results at an international congress in London.

Glaesner's report differed from mine in its theoretical considerations and in that he dealt only with cases with positive diagnosis of ulcer. He found that a large proportion of these ulcer cases were benefited by bile-salt treatment, and that in the cases which failed to improve, and were therefore operated upon, the ulcers were found to be of the chronic callous penetrating type unlikely to be healed by any medical measures.

Since then there have been no more publications on the subject by other authors, but I have heard from various sources that some clinicians are using bile preparations which I recommended in these cases with success.

My present belief is that bile preparations are of great value in the milder cases of "hyperacidity" not warranting the diagnosis of ulcer; that if used early they may prevent or abort ulcer; that in any case of ulcer they deserve a trial, and that in ulcer if they fail, when used in connection with rest in bed and an ordinary ulcer régime, no permanent relief is probable without surgery.

The type of preparation of bile or bile-salts used is of importance. Solutions of bile-salts are irritant to the stomach. The bile must therefore be given in pills, in salol or other coatings that will not dissolve in the stomach. I will mention here two that are satisfactory—Pil. Bili-salol, made by Fabery in Boston, and Glycotauro tablets of Hynson & Westcott, Baltimore. Some other preparations are undoubtedly equally good, but others not properly coated may defeat their purpose by causing preliminary irritations. Also since salol is soluble in alcohol they must not be given to patients taking alcohol.

In milder cases I give three pills three times a day before meals for a week and then the same dose every Sunday only. With this I emphasize mastication but allow any simple normal diet, avoiding only excess of amount.

In cases of ulcer I try to combine the above with rest in bed and a modified Lenhartz diet, but I have had cases of undoubted ulcer that have refused this, and have done well on the simple ambulatory treatment.

There is one more group of cases to be mentioned briefly for completeness,—that known as hypersecretion, continuous or intermittent. In these the stomach fills with acid secretion more or less without relation to food, and has to be emptied by vomiting or lavage. The continuous type is rare; the intermittent form, with only occasional paroxysms, is less uncommon.

Here, too, I think we must assume a harmful closure of the pylorus, for otherwise the excessive secretion of the stomach would drain into the intestine. In the few cases that I have had, the bile treatment has not seemed to succeed, so that I suspect that, in these, pyloric spasm, neurotic, reflex or other, may be present. This is a problem which must receive further consideration in the future.

In summary and conclusion let me reiterate the following points:

First. A hitherto little-recognized source of gastric distress exists in an abnormal valve-like action of the cardiac orifice which deserves further study.

Second. Patients complaining of sour stomach and heartburn *not* due to hypersecretion or to catarrhal or to alcoholic gastritis are frequently benefited by bile or bile salts when given in coatings which will not be dissolved in the stomach.

Third. For medical progress we clinicians should not depend solely on the fully developed teachings of laboratories and hospitals, but should constantly follow and ponder over the teachings of the medical sciences in relation to our own observations in practice with the hope of developing new practical methods.

1. Palfrey, F. W. "Administration of Ox Bile in Treatment of Hyperacidity of Gastric and Duodenal Ulcer," American Journal of Medical Sciences, June, 1913, CXLV, No. 6, p. 796.
2. Glaesner, K. "Ingestion of Bile as Remedy for Gastric Hyperacidity," Wiener Klinische Wochenschrift, Sept. 25, 1913, XXVI, No. 39, p. 1559, and "Bile Salts in Treatment of Gastric Hyperacidity," Medizinische Klinik, Feb. 1, 1914, X, No. 5, p. 191.

AERATION OF THE POSTERIOR ACCESSORY SINUSES IN ACUTE OPTIC NEURITIS.*

BY LEON E. WHITE, M.D., BOSTON.

THE pleasure in presenting a paper before this distinguished Society is mixed with fear and trepidation lest these meager gleanings, from a study of infections in the accessory sinuses as a cause of optic neuritis, may not be sufficiently worth while.

Beginning this work some ten years ago, I was stimulated to continue by the remarkable results obtained in early aeration of the sinuses on the one hand, and on the other by the pitiable and pathetic spectacles of permanent blindness

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which might have been prevented. During these years there have been times when adverse criticism and scepticism have tempted me to abandon the field, but the continued expressions of disbelief as to the advisability of operating unless marked pathology was evident in the nose, convinced me that it was my duty to stick to this investigation. To the kindness and encouragement of Dr. Mosher I am deeply indebted. As Chief of the Nose and Throat Department of the Massachusetts Charitable Eye and Ear Infirmary, he has permitted me to handle the cases referred from the ophthalmic side for this condition which has enabled me to study a large number and to follow them year after year. By thus keeping in touch with these cases it is possible to check up the early results and to determine whether the lesion is peripheral or central. Dr. Quackenboss and Dr. Spalding, the Ophthalmic Chiefs, and Dr. Verhoeff, the Pathologist, have rendered great service, as well as many others on both the aural and ophthalmic staffs.

Certain phases of this subject I have already considered, such as the anatomical relations of the optic nerve, the literature, the diagnosis, the prognosis, the etiology, pathology, etc. In each paper there has been a report of the cases followed since the preceding one, so that the one appended to this article is my thirty-fourth.

A brief résumé of the work done to date may be of interest. The relations of the optic nerve to the accessory sinuses has been carefully worked out. In 1886 Berger and Tyrman reported their findings in the examination of the differences in the partition wall between the optic nerve and sphenoidal sinus and noted that the bony wall separating the nose from the sinus was frequently of only tissue paper thickness. Onodi, in 1908, said: "For ten years I have been investigating the most delicate construction of the accessory cavities and the relation of the optic nerve to them." His work was so thoroughly done that later research has been largely a confirmation of his findings. In 1911 he published an atlas with natural size plates showing 38 different morphologic findings on the relations of the optic nerve. Let me quote one paragraph: "Our observations have shown that the wall between the last ethmoid cell and the canalis opticus is nearly always as thin as tissue paper; dehiscences in the walls of the accessory cavities have been found, there the diseased mucosa may come into direct contact either with the dura mater or the optic nerve sheath." Normally, according to *Loeb*, "the optic nerve may be described as passing externally from the chiasm along the roof or lateral wall of the sphenoid and in close relation with the ethmoid labyrinth *only* at the posterior external angle of the last cell. . . . Where this normal relation exists there is only the slightest possibility of any danger to the nerve in suppuration confined to the ethmoid cells. . . . But where the posterior ethmoid cell replaces a portion of the sphenoidal sinus, the optic nerve runs close to, and along the external wall of this ethmoid cell (as in two of the thirty specimens he studied) and its vulnerability is correspondingly heightened in view of the greatly increased portion exposed."

At the 1921 meeting of the American Medical Association *Dr. Schaeffer* gave a lantern demonstration of these relationships and showed many beautiful and instructive specimens. From his book on "The Nose and Olfactory Organ," the following is quoted:

"It is essential that the intimate anatomic relationships which exist between the paranasal sinuses and the optic nerve and commissure be understood by ophthalmologists and rhinologists. It is established that disease of the paranasal sinuses may lead to an optic neuritis, even to blindness. Of the paranasal sinuses, the sphenoidal and the posterior ethmoidal especially concern us in this connection. . . . Indeed, for a considerable distance from the eyeball, the optic nerve is so far removed from the paranasal sinuses that very intimate relationship is precluded by the intervention of a considerable mass of orbital fat. However, as the optic nerve approaches the orbital apex and passes through the optic foramen to the optic commissure, very intimate relationships exist between some of the paranasal sinuses and the nerve and its commissure. . . . The optic nerve pursues a course ventralward from the optic commissure along either the roof or lateral wall of the sphenoidal sinus. Frequently a posterior ethmoidal cell is more or less intimately related as well. After the optic nerve passes beyond the vicinity of the posterior ethmoidal cells, it diverges more and more from the ethmoidal field and is no longer in intimate relationship with the other ethmoidal cells."

From the investigations of these men you will see it has been demonstrated that the optic nerve may be in close relationship to the sphenoidal sinus and the posterior ethmoid cell. The sphenoids and posterior ethmoids are therefore the only sinuses in intimate relation with the optic nerve, and to reach the tissue adjacent to the nerve the direct and logical route would be through these structures and not through the entire ethmoidal labyrinth.

The *literature* on accessory sinus blindness is voluminous and dates back to the observations of Beer in 1817. He says in an article on "Vicarious Blindness from Suppressed Snuffles, without Evident Accumulation of Mucus in the Frontal Sinus,"—"that the recognition of this form of amaurosis is greatly facilitated by a history of a severe and suddenly suppressed cold in the head immediately preceding the ocular complication." He further says that "the cases all do well if one is able to re-establish a copious discharge of mucus from the nose."

In 1886, *Berger and Tyrman* gave a brief review of the previously reported cases of blindness, some 26 in number, arising from sphenoidal disease.

In 1915, Stark collected 88 cases from the literature. Since then the number reported has rapidly increased, but time only permits mention of some of the contributors:—Onodi, Sluder, Loeb, Knapp, Holmes, deSchweinitz, deKleyn, Berger, van der Hoeve, Halstead, Stark, Beck, Skillern, Vail, Posey, Bordley, Smith, etc.

While some writers recognize that it is not always possible to diagnose the nasal condition responsible for the optic neuritis, and have advised operating even if the nasal findings were negative, the general impression prevails, I believe I am justified in saying, that a purulent infection, even if unrecognized, must exist. So persistent is this belief that I am not infrequently told the accessory sinuses were eliminated because the roentgenograms were negative.

The *diagnosis* is naturally of major import. The symptoms in the ordinary case of acute optic or retrobulbar neuritis are quite typical. Associated with the loss of vision there may be discomfort about the eye or lameness on moving it. Occasionally there is slight exophthalmos, this condition indicating an inflammatory process in the orbit. Pupillary changes and ptosis are found occasionally. There is frequently a central scotoma for colors, enlargement of the blind spot and contraction of the fields. The value of quantitative perimetry has been emphasized by Walker and is of great assistance in making a differential diagnosis, but as many patients have not even light perception, these charts are not always obtainable. The patients frequently remember that things at first were blurry when looking straight ahead but comparatively clear when looking sideways. Changes in the fundus are of great value, varying as they do from normal to a commencing pallor in some cases and in others to a marked redness and swelling about the nerve head with engorgement and tortuosity of the retinal veins. It is essential that these inflammatory swellings be differentiated from those due to intracranial pressure.

The anterior portion of the nose may, and frequently does, appear practically normal. I believe the *one vital point* to determine in the nasal examination is the *size* and *position* of the middle and superior turbinates. Do they block the ventilation of the posterior sinuses? Is there impaired aeration? It takes but slight obstruction to interfere with the ventilation and the mistake is frequently made of expecting to discover marked changes.

There has been much controversy over the term so frequently used—"negative nasal findings." While pleading guilty to the use of this term, it was done to impress upon the rhinologists that but little was evident on inspecting many of these noses; also because several of my cases had been examined and reported as negative even when to me they presented evidence of blocking. One case in particular had a marked deflection of the septum which wedged the middle turbinate so firmly between the ethmoidal labyrinth and sphenoid that there could be no question whatsoever of its blocking, and because pus was not evident and the x-rays negative, the report was made that there was no accessory sinus involvement. This man developed optic atrophy and as the vision continued to fail he was referred to me a year later when I removed the middle turbinate. Following this there was improvement but only slight (from 20/200 to 20/100). The term "negative nasal findings" does not mean that the nose *is* normal. Normal noses do *not* produce optic neuritis, but optic neuritis can frequently be produced from noses which to some examiners *seem* normal. It is doubtful if any other field in surgery requires greater discrimination in making a differential diagnosis. I should hesitate to operate on any case where ventilation was possible by shrinking the tissues in the region of the posterior sinuses.

One can generally determine by the use of cocain and adrenalin whether there is a temporary swelling or a chronic enlargement of the middle turbinate. Deflected septa with crowding of the chronically enlarged middle turbinates are the most usual findings. The following is quoted from *Stark* who expresses well the thought I wish to convey:

"From a nasal standpoint we must not expect to find the common symptoms of sinus infection, pus, polypus, history of nasal discharge, etc., as we are dealing with a closed sinus; otherwise we should not have pressure. . . . The deflected septum and middle turbinate tightly pressed against the lateral wall should always be suspected."

Over half the cases give a history of a recent coryza or a prior influenza, but in a few there is no history of any nasal infection. Roentgenograms are usually disappointing. Occasionally slight blurring but practically never marked evidence of sinus disease.

Dr. Macmillan, the radiologist at the Infirmary, summarized the findings as follows:

"The radiographic examination in this group of cases was rather disappointing from the standpoint of one seeking definite pathology. In a number of instances, no clouding could be made out in the sphenoidal or ethmoidal cells; in others a slight blurring of the cell partition was evident, while in none of the cases was there definite demonstrable pathology. There was no evidence of involvement of either the frontal sinuses or the antra in any instance."

The diagnosis many times must be made largely by exclusion. In all cases the patient should undergo a thorough physical and neurological examination. One should consider in turn blood, urine, teeth, tonsils, hysteria, pellagra, lues, tobacco, alcohol, lead, arsenic, quinine, etc. While investigating *time* is a very important element and it is essential that needless delay be not encountered. Practically all necessary tests can be made within 48 hours. Pituitary disease, brain tumor and multiple sclerosis, while not usually producing such *sudden* loss of vision, must always be borne in mind. As a matter of

routine the various cranial nerves and lobes of the brain are tested. Not a few cases of brain tumor, Dr. Cushing informs me, have had various nasal operations before they were correctly diagnosed. This careful investigation has prevented unnecessary nasal operating in several cases I have seen in consultation. One should systematically go over each case before operating and convince himself that the eye condition in all probability originates from the accessory sinuses.

ETIOLOGY.

The earlier writers considered the mere presence of pus in the sinuses the all-sufficient explanation for the disturbance about the optic nerve, and while this may undoubtedly be the cause in some instances, it is by no means the usual or only one. The nerve is ordinarily protected by the barrier thrown out by inflammatory processes so that it is rarely involved unless through some anatomical abnormality. In only a small percentage of my cases has pus been found. Hyperplasia has been emphasized by others as the chief cause, and while hyperplastic tissue may involve the posterior sinuses, it has seemed to me from my study of the sections and cases that it would better be considered a predisposing factor rather than the principal etiologic condition. Hyperplasia undoubtedly renders the sinuses more vulnerable. The etiology seemed to be explained in many of my cases by the size and position of the middle and superior turbinates. Poor ventilation and faulty drainage appeared the more important predisposing factors. The theory advanced by me in a paper read before the "Triological" Society in 1921 is that these superior turbinate structures high up in the roof of the nose gradually become enlarged and obstructive. There is an increase in the basal connective tissue, *i. e.*, a certain amount of hyperplasia, so that eventually the posterior sinuses are practically blocked. Then some infection takes place in these sinuses which, if not already occluded by the hypertrophied turbinates, most readily become so by a very slight increase in their size. Then an inflammatory process commences. This is generally of the exudative but non-suppurative type. The swelling and infiltration incident to it spreads by continuity of tissue to the optic nerve, or (if the sinuses are completely shut off) there may be a closed empyema with infection to the nerve through the circulation,—not in all cases, of course, but in those which, through some anatomical peculiarity, are rendered especially vulnerable. The infection may be confined to the region superior and posterior to the middle turbinates, thus explaining why so little is seen on inspection and why roentgenograms show but slight, if any, changes, *i. e.*, only what would be expected from an acute non-suppurative inflammatory process.

PATHOLOGY.

While it would be most gratifying to have some comprehensible explanation of the pathology in the posterior sinuses, it is vastly more imperative that the results of appropriate treatment be given just weight. The unfortunate victim with optic neuritis wants his vision. If aeration of the posterior sinuses offers the best chance for recovery, why not aerate, even though one fails to find pus or marked disease? Later, if need be, let us differ as to why recovery takes place so speedily when so little is discoverable at operation. As *Loeb* says, "the ready recovery . . . is as convincing of their nasal origin as anything could be, short of autopsy findings." Those demanding an explanation of the pathology by the examination of the tissue, either macroscopically or microscopically, are frequently bound to be disappointed. Dr. Jonathan Wright's concise summary is most apropos:

"Endless talk and circumstantial evidence of the symptoms cannot decisively settle anything and there is little hope of getting the convincing pathological material in which infection or spreading inflammation can be traced objectively."

While not a *pathologist*, I have undertaken the consideration of the subject under five heads for convenience, *viz.*:

1st. Direct extension.
2nd. Toxemia from some infective process.
3rd. Bacteremia or focal infection.
4th. Hyperplasia.
5th. Anaphylaxis.

1st. By *direct extension*, infections in the posterior sinuses extend by continuity of tissue to the optic nerve. These infections are frequently non-suppurative, hence the negative roentgenograms. The question is often raised,—"Why is there loss of vision with so little evidence of pathology in the nose, and yet rarely any visual disturbance where there is marked disease? The answer is that in these chronic cases nature probably walls off the eye, the optic nerve, and, in fact, the body from the source of infection. When an acute infection occurs in the sphenoid or posterior ethmoid, the sinuses probably become closed and there follows an almost immediate invasion of the tissue about the optic nerve. When, however, there is an infection in a more remote sinus, it may become walled off before the nerve is reached. Should the infection persist, there may be forced into the system a certain amount of bacteria and toxins, which, in turn, can produce an optic neuritis. While chronic infections may occasionally involve the optic nerve, the acute and subacute infections with but little discoverable evidence in the nose are of far greater consequence. The fact that it is so easy to overlook these conditions leads me to dwell upon their importance:

2nd. Toxemia—It is conceded that retrobulbar and optic neuritis can be caused by alcohol, lead, tobacco, quinine, optochin, arsenic, lues, etc., so that reasoning by analogy there is little doubt but that toxins originating in the accessory sinuses, or, for that matter, anywhere in the body, may have similar action on the optic nerve.

The onset is usually less violent than where there is a direct extension and is more apt to be a causative factor in chronic types. It is quite generally conceded that any pus focus within the body may be a factor in these vision cases, and while this paper deals only with the accessory sinuses, other possible sources must not be overlooked.

3rd. Bacteremia—It has been demonstrated by Billings that infectious microörganisms may be carried in the blood stream or by the lymph channels from the foci of infection in the teeth, tonsils and accessory sinuses to the terminal blood vessels in various regions of the body. He has shown how the inoculated blood vessels become more or less occluded by endothelial proliferation and leukocytic infiltration and that the bacteria escape through the vessel walls into adjacent tissue, so there would seem little doubt but that bacteria within the accessory sinuses may also travel *via* the blood stream and lymph channels to the optic nerve.

It was probably due to bacteremia that the vision in one of my cases (33) remained at a standstill so long. This patient when operated on three weeks after the onset of the retrobulbar neuritis was only able to count fingers at six feet and the nerve head was turning white. Within forty-eight hours the vision had doubled and the discomfort and lameness about the eye, which had been marked, disappeared. Following a secondary hemorrhage, during which the posterior nares were plugged, there was a very severe infection in both middle ears and mastoids. This continued four weeks. One side recovered under treatment but it was necessary for me to open the mastoid on the other side. During these four weeks the vision remained stationary, but following the draining of the mastoid it commenced to improve again and when last seen some three weeks later was 20/60.

4th. Hyperplasia—As a predisposing factor hyperplasia is probably of considerable importance. It undoubtedly renders the accessory sinuses more vulnerable. Hyperplasia plus infection and direct extension to the optic nerve is probably of far greater consequence than the mere fact that the tissue has become hyperplastic.

5th. Anaphylaxis—In a paper read at the 1921 session of the American Medical Association Stark advanced the theory that there is a "sensitization of the tissues of both the sinus and the orbit by the bacterial proteins producing an allergy resulting in a localized anaphylactic reaction each time the individual comes in contact with a fresh infection of the same bacteria in the nose, and possibly in other parts of the body. For that reason many of these cases give a history of attacks resembling hay fever, or acute coryza, shortly previous to the eye trouble." While I have had a few cases presenting symptoms similar to those mentioned by Stark, it had not occurred to me that this would satisfactorily explain the pathology. It would, of course, explain the negative roentgenograms and the meager findings on opening the sinuses. It is, I believe, a valuable suggestion. There certainly seems to be a similarity between some of these eye conditions and certain anaphylactic reactions comparable to asthma and hay fever. As sinus infections frequently cause asthma, it is conceivable that they might also produce engorgement about the optic nerve. Further investigation along this line I sincerely hope may clear up many points which are but imperfectly understood at present.

Just a word as to what we are doing in pathology and the findings. The middle turbinate and the tissue from the sinus walls are placed in separate specimen bottles and after being carefully marked are sent to the laboratory for study together with cultures and smears from the sphenoid. Sections from ten cases I have brought with me which may be examined by those interested. I suspect, however, that most of you will prefer to read Dr. Jonathan Wright's interpretation of these slides which is included in my paper on Etiology and Pathology, shortly to appear in *The Laryngoscope*.

Dr. Martland, of the Newark City Hospital, also looked over the slides and summarized his findings as follows:

"Most sections show intact mucosa, in many places it seems to be edematous and hyperplastic; submucosa varies all the way from normal o areas containing numerous small mononuclears, practically no polymorphonuclears, some sections show considerable number of eosinophiles, indicating low grade chronic infection. Submucosa is often edematous, in some places there is questionable rarefying osteitis. Many sections show considerable dilatation of submucosal vessels (acute hyperemia) and undoubtedly represents low grade chronic inflammation, which is non-suppurative. Conclusion: It is quite possible in non-suppurative inflammation that edema of mucosa and submucosa with acute hyperemia of vessels, etc., may produce more pressure than a suppurative process, in which the pressure is often relieved by the breaking down of the tissues."

THE PROGNOSIS.

The prognosis depends largely upon the duration and extent of the loss of vision, the condition of the fundus and the virulence of the infection.

1. As to the *duration*, I have endeavored to determine how long an interval could elapse before there would be danger of permanent impairment of vision. In the 34 cases tabulated, four (all of short duration) recovered under local treatment. Seven operations were performed in the first week and practically normal vision obtained in all. Of the six patients operated upon within two weeks, two recovered with normal vision, three with vision 20/20—but with slight pallor of the nerve, and one with vision of fingers at three feet with optic atrophy.

Of the six cases in which operations were performed between the second and fourth weeks, normal vision but with some pallor was obtained in one; improvement in all the others. Four patients were operated upon in the second month. One obtained normal vision, another 20/20—but with some pallor. In the other two, optic atrophy with no improvement in one, and but slight improvement in the other. Of the six cases of over two months' duration, there was no improvement in three, and in the others it was so slight as to be almost negligible. In one case of four years' duration there was complete optic atrophy and, of course, no operation.

From the foregoing summary it may be said with some degree of assurance that unless a case shows improvement under treatment within a week, there is danger of permanent impairment of vision, unless pressure on the nerve can be relieved. In cases of more than two months' standing little can be expected, except possibly that the progress of the disease may be checked if due to some sinus infection.

2. As to the *degree of loss of vision*—In the seven cases in which there was complete blindness, two (of eight and 10 days' duration) returned to normal but pallor of the nerve remained. In one of four weeks' standing, fair sight was established. Unimprovement in three, while in another, fingers could only be counted at three feet. Thus the demand for early operative interference in total loss of vision is more imperative than when the loss is but partial.

3. *Condition of the fundus.* When the nerve appears normal one might, with safety, delay operating much longer than where there is increasing engorgement, or commencing pallor. It has seemed to me so imperative that the fundus changes should be watched from day to day that I have spent many hours during the past year trying to train my eye to this task.

4. The *virulence of the infection.* As in all the other types of infection, so in that producing optic neuritis, the mieroörganisms differ greatly in virulence. When the infection is of the virulent type, there is probably considerable exudate about the nerve or even within its sheath. The optic nerve, as you know, is really not a nerve but a part of the brain. It is easily destroyed and does not regenerate. Parsons says of it:

"The so-called optic nerve, together with certain parts of the retina, constitutes a lobe of the brain, and has therefore the characteristics of the central nervous system. Hence the nerve-fibres are devoid of a sheath of Schwann and the interstitial substance is neuroglia."

Whenever there is an exudate we have to contend with subsequent shrinking which may destroy the function of the nerve even though the pressure is relieved. This helps to explain why there are not complete recoveries in some early operations. Several of my cases showed pallor of the disc which probably resulted from this exudate. One of only ten days' duration had marked optic atrophy. The virulence of the infection in another case (31) was so marked that had the accessory sinuses not been promptly drained the vision would probably have been permanently lost. The case is also interesting from the fact that she was seen from the very onset of the trouble, being referred by Dr. Quackenboss on March 15, 1921, with diagnosis of optic neuritis, right. History: Fair general health but rather tired; has been subject to colds, has had one for four or five days, accompanied by pain about the eye for the past 24 hours, so that when seen she looked extremely ill. Eye was sensitive to light and on movements and pressure. Vision when first seen was 20/20. The right middle turbinate was somewhat enlarged and the septum deflected to that side. No secretion was seen within the nose but there was a marked pharyngitis. Transillumination was negative. Roentgenograms showed right posterior ethmoids. Slightly clouded and infection about one tooth which was later extracted. The physical, neurological and Wassermann examinations were all negative. Two days later the patient's vision was 20/40, central scotoma for colors. The following day there was an increase in the neuritis; vision 10/100. In view of the negative neurological examination, the rapidly diminishing sight and the increase in the inflammation of the optic nerve, it was deemed advisable to open the accessory sinuses at once. Under general anesthesia the right middle turbinate was removed, the sphenoid opened and the posterior ethmoid uncapped. The tissue was somewhat inflamed but no pus was seen. The lining wall of the sphenoid was little, if at all, changed. Cultures and smears were made and specimens saved for study. On the day following the operation the patient felt considerably relieved and the eye was less blurry. This lasted but a few hours, then there was a rapid recurrence of the blurring, probably due to an acute coryza or some post-operative infection, and the vision continued to fail, so that a week after operation fingers could only be made out at three inches and the edges of the disc were practically obliterated, some exudate, small blood vessels engorged. Two weeks after operation the swelling in the nose had subsided and the discomfort and blurriness were alleviated; counted fingers at eight feet; four days later fingers at 25 feet. Within a month the blurriness had practically disappeared and the outline of the disc was sharply defined. Vision was 20/60. Slight pallor of the nerve was noted two weeks later, vision 20/30. In six months it was 20/20. The smear from the sphenoid showed only blood and a few epithelial and pus cells. In one of the culture tubes there were three colonies of diphtheroid bacilli. Five specimens from the middle turbinate and sinuses were examined by Dr. Jonathan Wright, who reported as follows:

"(a) Right middle turbinate. Soft parts not especially altered. Some hyperplasia of fibrous

tissue near the bone and a very moderate degree of increase in the cellular activity along some bone edges,—blood vessel walls somewhat thickened. *Chronic inflammation of deeper elements of the mucosa and of the bone.*

"(b) Another fragment of right middle turbinate. Thinner section—more impressed with bone involvement. Fibrous hyperplasia quite evident.

"(c) Sphenoid. Specimen very small. Rarefying osteitis along some edges rather marked, but soft parts are largely lacking—not very satisfactory.

"(d) Ethmoid. More tissue, but no epithelium. Connective tissue near bone rather damaged by decalcifier, but intense nuclear infiltration and bone change marked as in (a)—more of it. O. im. 1/12 not very satisfactory. Section thick and cellular changes not very distinct, but one gets the impression of much cellular infiltration. Rather an acute process involving bone.

"(e) Post ethmoid. Narrow long strip of bone. Nothing to add to (a)."

THE TREATMENT OF OPTIC NEURITIS.

What is the appropriate treatment for a case with sudden loss of vision probably due to accessory sinus infection? It is known that some recover spontaneously while others untreated go on to atrophy. To operate in every instance would cause criticism, especially from those who claim that a large proportion recover spontaneously, but on the other hand permanent blindness may follow by delaying operation. Pus has only occasionally been found in the sinuses I have opened, and yet improvement usually commenced within 48 hours. It seems to be *aeration* or *ventilation* that is *required* rather than drainage or removal of diseased tissue. Hence, the general statement may be made that if aeration can be established the patient has been given appropriate treatment.

In speaking of the etiology mention was made of the theory that either acute swelling or chronic enlargement of the middle and superior turbinates seemed to be the explanation in many cases. If this is a fact, relief should be obtained either by remedies causing acutely swollen turbinates to subside, or by their removal of this tissue when chronically enlarged. Under local treatment several patients have recovered, and it is in the class of acutely swollen middle turbinates that most of the spontaneous recoveries belong. As previously mentioned, one can usually determine how much the tissue will contract, and as to whether or not the superior meatus can be sufficiently opened to furnish the requisite ventilation. If, after cocainization, the turbinate is found to hang free, the case will probably recover under local treatment. While, on the other hand, should the middle turbinate after cocainization still obstruct the aeration (*i. e.*, be wedged between the ethmoid wall and what frequently is found, a posterior deviation of the septum to the affected side) then the chances are not so good for recovery under local treatment, and it may be necessary to establish aeration by at least the removal of the middle turbinate and possibly the opening of the sphenoid sinus and the posterior ethmoid cell. As far as I have been able to determine, any process by which a chronic thickening of the turbinates (hyperplasia if you wish) is brought about, has probably produced some change in the linings of the accessory sinuses, I have therefore usually made it my practice, after taking out the middle turbinate, to remove the front wall of the sphenoid and uncap the posterior ethmoid cell. The other ethmoids, unless diseased, are not disturbed. If teeth or tonsils show infection, they are removed, and if an antrum is suspected, it is washed out and if pus is found, it is thoroughly opened. The more I study along this line the more this conservative method appeals to me. While on several occasions I have done a more extensive ethmoid operation, I do not now think it was necessary. Aeration of the sinuses adjacent to the optic nerve seems to be all that is required, the function of the nose is little if at all, impaired, and the procedure is less hazardous than when a complete ethmoid exenteration is performed. While to the skilled operator these radical procedures are of minor concern, the patients do not always fall into his hands. As fatalities have been reported following these extensive operations on the ethmoid labyrinth, it has seemed best to advocate a method having the advantage of being both simple and safe.

It may be superfluous to mention the operative procedure but if I do not some one is sure to ask, so the following is taken from a recent article of mine in *The Laryngoscope*—"Remove as much of the middle turbinate as is necessary to gain access to the sphenoid, by incising it below and anteriorly with a Sluder knife, then severing its outer attachment with middle turbinate scissors, followed by snare, and finally removing all fragments, and occasionally portions of the superior turbinate with biting forceps. It is especially important to freely expose the front wall of the sphenoid. The Sluder's sphenoid knife, with point downward, is passed along the cribriform plate until the front wall of the sphenoid is reached high up. Downward pressure easily forces the knife through this anterior wall. By this method one is working away from the brain and never toward it. With two or three strokes downward and then two or three outward, the sphenoid is sufficiently opened to permit inserting an antero-posterior pair of biting forceps with which the anterior wall is quickly removed. The posterior ethmoid is uncapped with a curette. Don't meddle with the lining membrane of either the posterior ethmoid or sphenoid."

As to post-operative complications. There have been no fatalities. Three secondary hemorrhages have occurred, two were controlled by packing in the nose as the third might have been.

This is the mastoid case already mentioned in speaking of bacteremia. The patients are usually not upset by the operation and remain in the hospital but two or three days. Local anesthesia can be used if one so desires, but ether, with patient in sitting position, is usually preferable. The results have already been summarized under prognosis and it but remains to add in conclusion that my early operations have been uniformly successful. Cases of over two months' duration, however, have been benefited but little. One cannot draw sharp lines on the basis of time only. Each case must be considered on its own merits. Some with progressive loss of vision, even when there was marked pallor of the nerve, have been slightly benefited. Complete optic atrophy is, of course, hopeless.

CASE 34: E. A. H., a schoolboy of 15, was referred on May 18, 1921, by Dr. William N. Souter, with diagnosis of optic neuritis, right. Patient in fair health but rather backward: is subject to frequent colds and occasional sore throats: right eye has never focused: had severe cold a month ago. Eight days ago pain commenced in the right eye, shortly followed by almost complete loss of vision. Finger movements on temporal side close to eye when first examined. Eye sensitive to pressure and on movement. The boy had large unhealthy tonsils and adenoids. Septum was fairly straight. The right middle turbinate was of large size and shrunk but little on cocainization. It seemed, without question, to obstruct the posterior sinuses. Some muco-purulent secretion beneath both middle turbinates. Dr. Macmillan reported on the roentgenograms as follows: "All sinuses appear clouded, suggestive of an acute pansinusitis. Ethmoids in particular appear to be involved, the left perhaps more than right. Stereoscopic lateral examination shows sphenoid is large but does not appear to be clouded." Dr. Vail examined him and reported: "Convergent squint o. u. External recti can function. Left pupil larger than right. Pupils react to consensual reflex. Sluggish with suggestion of hippus on flashing light into right eye and exam. reaction of left. *Fundi*—o. d. disc pale, outline blurred, vessels not remarkable; o. s. disc pale yellow, outline sharp. Pigment not marked. *Visual field* on rough examination in right eye confined to upper temporal quadrant. *Vision*—Sees light shadows with right eye; left eye apparently normal. *Cranial nerves*—Normal. Patient right handed. No aphasia or cerebral disturbance. No spontaneous nystagmus nor Romberg. Kneejerk lively and equal. *Impression*—No evidence of any intracranial lesion." The other examinations being negative and the findings in the nose so positive, there was no hesitation in advising immediate operation. On May 20th the tonsils and adenoids were removed, the right middle turbinate taken out, and the posterior ethmoid cell uncapped. As the opening into the sphenoid seemed of good size, it was not enlarged. There was an almost immediate improvement in vision, so that within three days he could count fingers at one foot. Two months later Dr. Souter reported that the patient "shows excellent progress. Vision with correction 6/12 plus, fields practically normal, though disc shows some pallor." Dr. Verhoeff reported as follows on the middle turbinate specimen: "The mucosa shows a marked infiltration with chronic inflammatory cells, plasma cells greatly predominating. There are, however, small foci composed exclusively of lymphocytes. Pus cells are practically absent. There is no tendency toward polypoid formation. The deeper tissue is normal."

SUMMARY.

The optic nerve is only in close relationship to the sphenoidal sinus and the posterior ethmoidal cell. In order to reach the tissue adjacent to it, the direct and logical route would be through these structures and not through the entire ethmoidal labyrinth.

The literature dates back a little over one hundred years and the general impression obtained from it is that purulent infections, even though unrecognized, must exist.

The diagnosis can sometimes be made almost from the symptoms, while at other times it can only be determined after the most careful and painstaking study. Roentgenograms are usually disappointing. Great care must be taken to exclude brain tumors.

No one etiological condition is responsible for all cases. While purulent infections may account for a few, there are many in which the infection is non-suppurative. Poor ventilation and faulty drainage are all important predisposing factors. The size and position of the middle and superior turbinates are of great importance in aeration of the posterior sinuses.

Pathology: 1. Direct extension
2. Toxemia
3. Bacteremia
4. Hyperplasia
5. Anaphylaxis

1st. By direct extension acute and subacute infections spread by continuity of structure to the optic nerve.

2nd. Toxemia. Toxins originating in the accessory sinuses may involve the optic nerve.

3rd. Bacteremia. Microörganisms may be carried in the blood stream or lymph channels from the sinuses to the optic nerve.

4th. Hyperplasia as a predisposing factor is of considerable importance as it tends to render the accessory sinuses more vulnerable.

5th. Anaphylaxis. There seems to be a similarity between optic neuritis and certain anaphylactic reactions comparable to asthma and hay fever. As sinus infections cause asthma it is conceivable that they might also produce engorgement about the optic nerve.

The prognosis depends on the duration and extent of the loss of vision, the condition of the fundus and the virulence of the infection.

Treatment: The important thing is to estab-

lish aeration and not to remove diseased tissue. Some will recover under local treatment. In others a semi-radical sphenoid operation is advocated.

Complications: No fatalities. Three post-operative hemorrhages. In one, middle ear infection followed the post-nasal packing.

BIBLIOGRAPHY.

BERGER and TYRMAN: Die Krankheiten der Keilbeinhohle und des Siebbeinlabyrinthes, 1886.

ONODI: "The Optic Nerve and the Accessory Cavities of the Nose." Annals of Otology, Rhinology and Laryngology, 1908.

"Die Eroffnung der Schadelhohle und Freilegung des Gehirns von den Nebenhohlen der Nase aus," 1911.

LOEB: "A Study of the Anatomic Relations of the Optic Nerve to the Accessory Cavities of the Nose." Annals of Otology, Rhinology and Laryngology, Vol. XVIII, 1909.

"Two Cases of Blindness Relieved by Ethmoid Exenteration. A Case of Keratoiritis Due to Tonsil Infection." Trans. Laryngol., Rhinol. and Otol. Soc., 1920.

SCHAEFFER: "The Nose and Olfactory Organ," pages 190-192.

STARK: "Sudden Blindness Due to Suppuration of the Nasal Accessory Sinuses, with Report of Three Cases." Journal A. M. A., Vol. LXV, No. 18.

"Retrobulbar Neuritis, Secondary to Diseases of the Nasal Sinuses." Journal A. M. A., Vol. LXXVII, No. 9.

WHITE: "Accessory Sinus Blindness: Differential Diagnosis and Operative Technic." The Laryngoscop, August, 1921.

"Etiology and Pathology of Loss of Vision from the Accessory Sinuses." BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. 185, No. 16, October 20, 1921.

BILLINGS: "Focal Infection." Published in 1918.

PARSONS: "The Pathology of the Eye." Vol. II, page 652.

PERFORATED GASTRO-DUODENAL ULCERS. SOME NOTES AS TO THEIR TREATMENT.

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PERHAPS the most serious and terrifying surgical emergency which can occur in the abdomen is the acute perforation of a gastric or duodenal ulcer. It is a condition which must be recognized and treated promptly, otherwise the result is most apt to be a fatality. It is not the type of accident in which "observation" is allowable, for every hour after perforation increases the mortality with great rapidity.

So much concerning this condition has appeared in the literature during the past decade, that it would seem as though the symptomatology of it would be a matter of common knowledge, and that great accuracy would be attained in its diagnosis. Yet, reports from various clinics throughout this country show that the diagnosis is made in only from 28 per cent. to 60 per cent. of cases. Furthermore, one case in our own series, and which we shall report later, was admitted as cholelithiasis and was in the hospital six hours, until the increasing gravity of the symptoms demanded that some one be called to see him. The diagnosis in this case was perforated duodenal ulcer and was proved at operation. These facts furnish an excuse for briefly reviewing the symptoms.

The most important single item is the history and it is so characteristic that the diagnosis should be made from it alone. There are no premonitory symptoms. The victim is stricken suddenly during his ordinary occupation. He may be at work or at play, when suddenly he is seized with an atrocious pain in the epigastrium. He may be thrown to the ground by the severity of the attack. Soon he is writhing in agony. He passes almost instantly from a condition of relative well-being to one in which his very life is in jeopardy, and he knows it. He is conscious that he is desperately sick, and demands relief. This story is almost unvaried and should be sufficient to establish the diagnosis, for surely no other condition simulates it.

Quickly the signs of peritoneal insult supervene: nausea, vomiting, abdominal rigidity and shock. On physical examination, we find the patient with a pinched, anxious face, breathing with obvious difficulty. The abdomen is held rigidly, and respiration is almost entirely thoracic in type. The abdomen is tender and rigid, "board-like," with tenderness and spasm most marked in the epigastrium. The pulse is accelerated; the temperature may or may not be increased. Later, with increasing leakage of air from the perforation, the normal liver dullness is obliterated. This is a very valuable sign and is almost always present. And this sign is especially valuable for this reason: Very often, in such a cosmopolitan clinic as that at the Boston City Hospital, we are obliged to operate on foreigners who cannot speak our tongue, where no interpreter is available, and who cannot furnish a shred of history. The most valuable diagnostic landmark is lacking. In such a case, the only physical sign of any value whatever is the absence of the normal liver dullness and its replacement by tympany. If this sign is missing, no diagnosis can be made except acute surgical lesion in the upper abdomen.

Treatment. Until comparatively recent years, the treatment has always been suture of the ulcer, and drainage, and the results, with very few exceptions, have certainly been nothing to brag about. Scully reported 49 cases treated at the Cook County Hospital, Chicago, with 28 deaths; a mortality of 57 per cent. Hertz reported 53 patients operated at the Copenhagen Hospital, with 27 deaths; a mortality of 50 per cent. plus.

During the years 1915 to 1920, 119 cases have been operated at the Boston City Hospital, with 52 deaths; a mortality of 43 per cent. These cases have, for the most part, been treated by simple closure of the ulcer with drainage. There have been a few small series of cases reported, with low mortality, notably Gibson's. He reported 14 cases operated by simple closure, with one death. However, with a few exceptions, the general mortality of perforations treated by simple closure runs between 30 and 40 per cent.

It would seem that in dealing with such a serious condition, anything which might improve results must be seized upon and tried out. It was for this reason that the operation of posterior gastroenterostomy was added to the treatment. The principal advocate of this has been

John B. Deaver. He has been using it practically as a routine operation for the past 15 years, and his latest statistics show 67 operated cases, with five deaths, a mortality of 7.5 per cent.

Gibson, of New York, has had remarkable success with the simple procedure, and heads the list of the opponents to the more radical operation.

My colleague, Dr. Walker, reported 98 cases operated at the Boston City Hospital, almost entirely by simple closure and drainage, with 21 deaths; a mortality of 27 per cent. Richardson reported 90 cases from the Massachusetts General Hospital with 32 deaths; a mortality of 35.5 per cent. Walker concluded that gastroenterostomy was unjustifiable, in spite of the fact that it had been done on only a few cases. Richardson rejected the operation in spite of the fact that out of 12 cases in which it was done, 10 recovered; a mortality of 17 per cent. compared with 35.5 per cent. for the whole series.

From the foregoing, it is obvious that primary gastroenterostomy had received a rather effective "black eye" in Boston. In spite of this, however, greatly influenced by the astonishing results of Deaver, we believed in the primary operation, and were only waiting for what we considered to be a suitable case. This opportunity came in November, 1918, and the result was so striking, the convalescence so smooth, that we have employed it in all the cases of acute perforation which have since fallen to our lot. The total is eight cases. A brief résumé of the histories follows:

Case 1. P. D. Male. Laborer. Age 47. Admitted B. C. H. November 26, 1918. Previous history of digestive disturbance. Seizure three hours before admission. Liver dullness absent. Diagnosis pre-operative. Perforated ulcer. Operation. Perforation found in first part of duodenum. Closed and infolded. Posterior gastroenterostomy. Drainage. Convalescence uneventful. Discharged December 12, 1918.

Case 2. A. W. Male. Blacksmith. Age 22. Admitted B. C. H. September 20, 1919. No previous digestive disturbance. Seizure six hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in first part of duodenum. Closed and infolded. Posterior gastroenterostomy. Convalescence uneventful. Discharged October 6, 1919.

Case 3. E. A. Male. U. S. Marine. Age 30. Admitted to B. C. H. November 2, 1919. No previous history of digestive disturbance. Seizure eight hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in anterior wall of first part of duodenum. Convalescence uneventful. Discharged November 11, 1919, to Marine Hospital, Chelsea.

Case 4. J. H. Male. Janitor. Age 72. Admitted B. C. H. November 9, 1919. History of previous digestive disturbance. Seizure eight hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in anterior wall of stomach, 1½ inches from the pylorus. Perforation infolded. Posterior gastroenterostomy. Convalescence uneventful. Discharged November 22, 1919.

Case 5. D. McP. Male. Mechanic. Age 47. Admitted B. C. H. April 27, 1920. History of digestive trouble. Seizure five hours before admission. Liver dullness absent. Pre-operative diagnosis. Perforated ulcer. Operation. Perforation found in anterior wall of stomach close to the pylorus. This was closed and infolded. Posterior gastroenterostomy. Drain to the site of perforation and on account of the very large amount of gastric contents in the pelvis, a suprapubic drain was inserted. Convalescence uneventful until the third day, when a cough appeared, accompanied by a rise in temperature to 102.5 degrees. Physical examination showed an infarct in the right lung. Convalescence from then on, uneventful. Discharged May 14, 1920.

Case 6. A. L. Male. Laborer. Age 30. Admitted B. C. H. December 4, 1920. No history of previous digestive trouble. Seizure six hours before admission. Diagnosis on admission was gallstones. He was in the hospital six hours when seen by us. At this time, 12 hours after seizure, the diagnosis of perforated ulcer was made. Operation. Perforation found in anterior wall of second part of duodenum. This was closed and infolded. Posterior gastroenterostomy with drainage. Convalescence uneventful. Discharged December 27, 1921.

Case 7. A. Z. Male. Shipwright. Age 57. Admitted B. C. H. March 3, 1921. Previous history of digestive trouble. Seizure 30 hours before admission. Pre-operative diagnosis. Perforated ulcer. Operation. Abdomen filled with bile-stained fluid which suggested ruptured gall-bladder. Gall-bladder found to be very much distended and filled with stones. Perforation found low in the posterior wall of the second part of the duodenum partly occluded by fibrin. The anatomical relations were so confused on account of the staining with bile, and for fear of wounding the portal vein, no attempt was made to suture the perforation. Posterior gastroenterostomy was made. Gall-bladder removed. Drain placed down to the site of perforation. Convalescence was stormy for a while. Drained duodenal contents from third day on. Discharged April 7th, 1921. The discharge diminished gradually and the wound was entirely healed on May 8, 1921.

CASE 8. L. T. Male. Laborer. Age 38. Admitted to B. C. H. October 1, 1921. Previous history of digestive trouble. Seizure five hours before admission. Liver dullness absent. Convalescence uneventful. Discharged November 4, 1921.

SUMMARY.

SEX	AGE	TIME INTERVAL	OPERATION	RESULT	TIME IN HOSPITAL
Male	47	3 hours	Closure and Gastro-enterostomy	Recovery	16 days
"	22	6 "	" " " "	"	16 "
"	30	8 "	" " " "	"	9 "
"	72	8 "	" " " "	"	13 "
"	47	5 "	" " " "	"	18 "
"	30	12 "	" " " "	"	24 "
"	57	30 "	Closure, Gastro-enterostomy and cholecystectomy.	"	25 "
"	38	5 "	Closure and Gastro-enterostomy	"	14 "

Average age, 43 years; average time interval, 9½ hours; average stay in hospital, 17 days.

We realize that this small series, while personally gratifying, is without value from a statistical point of view. However, the cases are consecutive; they represent a wide range in the time interval, age, and general physical condition of the patients: they certainly cannot be called selected cases. It would seem, then, that this method of treatment offers some chance of improvement in our results. Not that we would recommend any routine procedure for this condition. We should judge each case on its merits, and after consideration of all factors, do the operation which seems best under the circumstances.

The most important factors to be considered are: *First*, elapsed time between perforation and operation, for the danger increases rapidly with the increase in the time interval, each moment adding to the degree of contamination and the chances of peritonitis. *Second*, the general condition of the patient; and this includes a comparison between his condition before perforation, and the degree of shock present after perforation. In other words, How hard has he been hit? *Third*, the size of the perforation and the rate of leakage; the degree to which it has been closed by fibrin, omentum, or food particles. *Fourth*, the degree of peritonitis already present, remembering that true peritonitis occurs only late in the disease. *Fifth*, the condition of his stomach at time of perforation; was it full or empty? *Sixth*, the degree to which the pylorus will be occluded when the perforation is closed, and this is a very important item, because a perforation cannot be closed without encroaching upon the lumen of the bowel. But adequate treatment demands not only treatment of the perforation but also of the underlying ulcer. This must be folded in, and of course that means further constriction. Furthermore, the amount of constriction must be greatly increased by subsequent oedema and swelling, caused by our operative manipulations. This, in our opinion, is one of the very important causes for the bad results in cases treated by simple closure.

From the foregoing, it is obvious that no hard and fast rule can be laid down for the treatment of these cases. Nor can the conditions be prognosticated until the abdomen is opened, and each of these factors considered. For example, a man with a small perforation, occurring when the stomach is empty, may have only a small accumulation of fluid in his abdomen, and may be a good surgical risk even after thirty-six hours. On the other hand, a man with a large perforation, after a full meal, may be in desperate condition, with gastric contents throughout the abdomen, in an hour or two. Furthermore, the condition may be greatly influenced by the behavior of the surrounding coils of intestine. For example, the transverse colon may distend with gas and, by pressure against the anterior abdominal wall, prevent the gastric contents from reaching the general abdominal cavity. This condition I have seen on two occasions. In favor of immediate gastroenterostomy it may be said that the possibility of pyloric obstruction, whether from closing the ulcer, from oedema, or from later cicatricial contraction, is obviated, the stomach and duodenum are immediately put in a condition of rest, and the necessity for a secondary operation is removed. The mortality is diminished and the convalescence more smooth.

The objections to this procedure are that it prolongs the operation, adding further shock to a patient already in a serious condition; that the lesser peritoneal cavity is opened to infection; that perforation cures the ulcer and therefore removes the necessity for gastroenterostomy. The first objection is certainly obvious. Something is added, both to the time and shock, and this must necessarily contraindicate the operation in patients already prostrated. But, as has been pointed out by Deaver, these cases stand surgery very well, and it is only in the occasional case that gastroenterostomy would increase the danger. The objection to opening the lesser sac doesn't seem to amount to much, since no one has reported a case in which infection of the sac has been caused thereby. The contention that perforation cures the ulcer has been disproved by the many cases of reperforation which have been reported. Furthermore, the reports of end-results available, and our own experience in perforation treated by simple

closure, would indicate that the ulcer persists and causes symptoms in a large percentage of cases.

In view of these facts, it would seem that we have available a therapeutic measure of considerable value which has not been reasonably tested in this locality. Our own experience would indicate that, if this procedure is more generally adopted, there will be a sudden and decided improvement in our statistics.

STIFF FINGERS.

By Fred J. Cotton, M.D., Boston, and Edw. J. Sawyer, M.D., Boston.

Concerning stiff fingers in their various sorts, which are much commoner than they should be among us, even now, we have had no very definite scheme nor any considered form of attack.

After trauma as, typically, in Colles' fracture, with or without "traumatic arthritis" as a sequel; after metacarpal or phalangeal fractures, especially the compound ones; after mashing of soft parts of the hand; after all infections and particularly the so-called cellulitis cases; after burns, with or without infection; after the run of an acute rheumatism or a subacute attack in hand or wrist;—in all these conditions and in other odd calamities one meets with stiff wrists, stiff fingers, and no little suffering and disability,—out of all proportion to the cause or the lesion, for the lesion in fact is apt to be merely a scar fibrosis of one or another structure about the joint—in the "soft parts"—only rarely in the tendon sheaths which have been heavily overplayed in our teaching.

Some of the cases yield to the baking and massage that has become so usual lately that in our hospital records they write "B. & M." just as they still write "D. & C." for a routine measure hardly less justified as a scheduled routine.

Many pelvic cases, however, have never yielded to the magic of "D. & C.", and some wrists and fingers show a like stubbornness to the blandishments of "B. & M." !

Not a few become inveterate, though with little or no joint damage, and with actual lesions apparently inconsiderable.

It is fair, I think, to consider any case under ordinary physio-therapy treatment—and I include in this all the Zander, Tait-McKenzie measures—for three months without something near a cure, as fully ripe for a surgical overhauling.

Some there be that need bone surgery or tendon plastics or scar excision with flap plastics. These are not our concern for the moment.

What we mean is the class of cases that have gone on for months almost unchanged,—the kind of cases that used to have a calamitous (though kindly meant) "*brisement forcé.*"

Most of these can be handled by traction. During the war every doughboy knew the banjo or "ukelele" splint.

The principle—very old—of the "ukelele" was that of continuous traction, or, to put it concisely, of *distraction* and *traction*, the pulling of joint surfaces APART to lessen the terrific intra-articular pressure from the attempt to flex or extend the fingers.

Also the deep principle that massage can endure but a quarter or half hour a day,—1/96 to 1/48th of the time, while traction can equal 96/96—a not inconsiderable advantage, if you think of it.

Some months ago we found ourselves doubtfully blessed with a few of these cases, carefully treated by routine methods, getting no where at all.

Case 1. F. W. Male. Age 53. Injury to shoulder, May 1920. Secondary stiffening, definitely arthritic, of wrist and fingers. Routine treatment with good P. T. handling. His home doctor advised amputation of at least two useless fingers.

January 1, 1921, all finger-tips under forced flexion could be brought only to the level of the knuckle joints and two inches away from the palm.

Apparatus as sketched in Fig. 1 was applied with the elastic pull regulated by the very competent patient. This was the full range of flexion possible at that time. He wore this apparatus for two months, then a strong elastic band about the kunckles to flex them was worn as constantly as possible. After about 2½ months the result was as shown in Fig. b, and a fortnight of massage and active exercise restored him to normal function.

Case 2. R. B., Man of 55. Colles' fracture one year previous with mild arthritic reaction and stiff wrist and fingers.

Wrist capable of 45 degrees flexion, with no supination, and pronation 20 degrees short of his limit (measured by the other hand). Under physio-therapy the wrist came back to near normal but the fingers, particularly the first and fourth, remained stiff at knuckle and finger-knuckle joints so that they could not be brought within a half inch of the palm.

Traction apparatus applied (as in Case 1.) with pull in the line of the deformity *gradually* changed to slightly more flexion. This was March 8, 1921. April 4th all fingers touch the thenar eminence with a good grasp.

Patient discharged with perfectly good hand.

Time prior to treatment—1 year.

Time under treatment to final result—27 days.

Case 3. H. T., Man of 38. Machinist. Four months previous, crushing wound back of right hand involving adhesion to tendons of 1st and 2d fingers.

Operation Jan. 25, 1921. Secondary repair

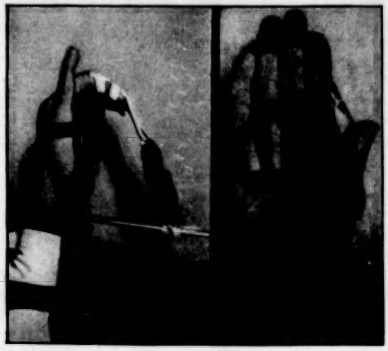

FIG. 1. Case 1 at the beginning of traction treatment and a double exposure plate showing the limits of flexion and extension, taken ten weeks later.

FIG. 2. Case 3, March 3, 1921, and March 10, 1921.

FIG. 3. Case 4, End-result. Double exposure showing limits of voluntary flexion and extension.

of these tendons and plastic rearrangement of scar.

March 3, 1921, three weeks later, traction apparatus applied to all four fingers. At that time fingers could be closed only to level of knuckles,—better than before operation but not greatly better.

After 10 days, all fingers came to within ¼-½ in. of the palm.

After 15 days fingers came to palm with a grasp still a bit weak but otherwise normal.

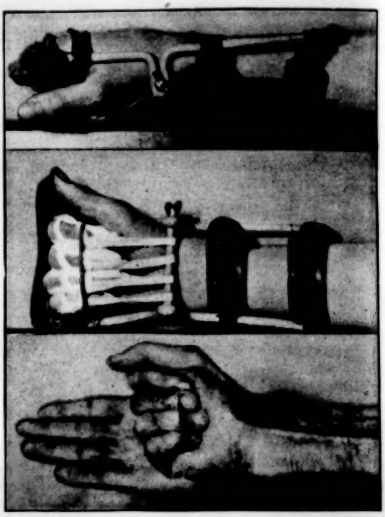

FIG. 4. Case 5. Apparatus and end-result.

CASE 4. W., Male of 27. Septic hand, multiple incisions, one year previous to reference to us. Ring finger useless with destroyed tendons. Amputation of the ring finger at finger knuckle, 1921. Four months later, after persistent and competent physiotherapy, the finger tips could not be brought to the palm or near it.

Feb. 19, 1921. Apparatus applied, to be worn t night only. At that time index ½ in. from palm, middle ½ in. from palm, little 2¼ in. from palm.

On Feb. 25th, at six days, index ¼ in. from palm, middle ¼ in. from palm, little 2 in. from palm.

March 3, index to palm, other two with normal flexion at knuckle and finger knuckle, last joints a bit stiff.

After this elastic flexion bands applied to be worn at night to complete cure.

March 9. Normal mobility, exception little finger, which still was ¼ in. short of reaching the palm. (Feb. 19 it was 2¼ inches short.)

March 24. All fingers practically normal. April 2 (42 days) all motions normal, lacks only strength: discharged.

CASE 5. J. C., Male 40. Stableman. Right Colles' fracture, Aug. 21, 1920. Splint for six weeks.

First seen Nov. 17, 1920. Marked loss of supination, flexion and extension at the wrist. Fingers all very stiff.

Dec. 1, 1920, operation to remove a partly loose fragment of bone on the back of hand impeding action of extensor tendons.

Aseptic recovery, but, even with careful P. T. treatment, no great results.

Feb. 4, 1921, all four fingers show loss of flexion at knuckle-joint, so that tips of fingers in flexion come only to knuckle level.

Traction applied.

Feb. 7, gain=¼ in. average in flexion.

Feb. 10, *all* fingers touch thenar eminence in flexion.

Feb. 17, 1921, *all* fingers press thenar eminence in active flexion with considerable grasp.

Save for muscle strength to be gained, this is a normal hand.

Previous disability 136 days.

After traction 13 days.

In this case a different pattern of splint was used,—perhaps no better.

Case 6. H. P., Girl of 22. Baseball injury to right ring finger six weeks previous to my seeing her. Under electrical and massage treatment by Dr. F. B. Granger she had progressed to a certain point. He referred her to me Aug. 4, 1921, there being no further improvement.

There was still about 30 degrees of permanent flexion on the "finger knuckle" joint (between ph. 1 and 2.)

The x-ray showed thinning of cartilage and irregularity of first phalangeal joint of ring finger, July 7, 1921.

In this case we applied the old type "banjo" splint with traction in line of deformity and moderate pressure to correct flexion.

After a week, straight traction in the banjo splint was practicable.

This was to be worn at night, a little "trough" splint daytimes, and she went westward to her home practically well,—or at least with normal range of joint motion.

Case 7. T. B., Male, 24. Traumatic amputation left index and phalanx, sepsis.

Seen by us many months later.

Banjo splint applied.

Some correction of hyperextension at the knuckles.

No serviceable gain.

This case had real joint adhesions, and the treatment was a mistake.

Case 8. Mrs. L., Age 45. Hypertrophic arthritis of divers joints. Traction apparatus (banjo splint) applied in this case failed because of the obstruction furnished by actual mechanical locking (by osteophytes). It was bad judgment to have tried it.

So there are eight cases here, of which six were materially and very practically benefited by the careful application of a method we all know about and have neglected.

The lesson is obvious.

As to apparatus, the banjo splint is old;—the other two forms (devised by Dr. Sawyer) are rather neat, but have no exclusive claim on efficiency.

The whole story is, we think, that 24 hour traction, by miniature winches or by pull of elastic bands, traction exerted in the line of deformity to produce a *distraction* of joint surfaces, with very gradual change of the line of pull toward flexion or toward extension as the case demands, will so supplement ordinary physio-therapy methods or so displace them that stiff hands and fingers may possibly come to be rare and come to be regarded as perhaps a reflection on the treatment of the case rather than as the result of the "Act of God" clause under which we surgeons perhaps, even like the express companies, are a little too much inclined to explain our losses.

THE AID WHICH THE STATE OFFERS IN CONTROL OF TUBERCULOSIS THROUGH SANATORIA AND CONSULTATION CLINICS.

By Eugene R. Kelley, M.D., Boston,
Commissioner of Public Health.

The manner in which the State extends assistance to the consumptive by the service of State sanatoria, must be so well known to this group that any description of the mechanism by which this function is carried out is superfluous. Yet within a year I have been astonished to learn of a practising physician of several years' experience in one of our larger cities who, apparently, was in total ignorance of the availability of the State sanatoria for his patients.

The original concept back of the establishment of our first sanatorium, Rutland, seems to have been primarily rather of a humanitarian than of a public health economic character. For one, I am proud that the humanitarian idea of giving the consumptive a fighting chance to win his way back to health was foremost, and that it still is foremost in the minds of the citizens of Massachusetts in their splendid financial and moral support of all these beneficent institutions, whether they are labeled State, County, Municipal, or Private in classification.

It is a grave mistake to consider that the county and municipal tuberculosis institutions should be concerned in the care of the far-advanced to the exclusion of the early or moderately advanced case. There is no reason why such cases cannot be admitted to these institutions if it does not mean the exclusion of the sick and advanced type.

Yet I cannot but feel that the time has come when we need to make a more concerted effort to get back to original principles and ideals relative to the sanatoria and endeavor, as never before, to encourage the physicians of the State to see that their patients get to the State sanatoria in the earlier stages of the disease.

The reason for this is twofold:

In the first place, the State sanatoria were not originally constructed for, and in spite of later makeshift adaptations made by pressure of necessity, are not now, and never will be, adequate *hospitals*. The newer municipal and county institutions, in addition to being able to provide the basic provisions for institutional treatment of tuberculosis in the ambulant stage, are splendidly equipped for the humane hospital care of the bed case.

In the second place, in spite of our failures and shortcomings in this direction, the hundreds of successfully arrested long-time graduates of our sanatoria are the great constant object lessons of their communities of the feasibility of checking tuberculosis.

It is a pity, in times when demand for sanatoria service is brisk, to have the far-advanced, even though quiescent and institutionalized, individual indefinitely block the prompt admission of the early case because he is occupying the bed that the early case might otherwise have. For this reason, we have begun, of late, to put into effect more and more the policy of definitely limiting the term of residence in the sanatoria. The working out of this policy may seem harsh to the occasional individual, but no one will be forced to leave a sanatorium under the control of the State unless there exist opportunities to go to a local tuberculosis institution, if he will go, or unless his home surroundings are such that he can reside at home and put into application the lessons we have tried to instill into him during his sanatorium residence. We are convinced that the policy is the fairest and best from the standpoint of the greatest good to the greatest number and of giving the maximum economic and social welfare return for the considerable sums of money that the citizens of this Commonwealth have invested in the permanent equipment of the sanatoria, and the large annual sums required to maintain them. I wish to take this occasion to ask your support of the Sanatoria Superintendents and the Director of the Tuberculosis Division of the State Department of Public Health in carrying out this policy.

The great preventive function of tuberculosis hospitals and sanatoria is, I fear, only too often overlooked by the practising physician. It is, in a word, not so much the snatching from the grave of a certain percentage of sanatoria admissions who, but for this privilege, would undoubtedly go on to early fatal result, as it is the elimination to a large degree, so far as these persons are concerned, of their potential powers for mischief as purveyors of massive doses of infection to their intimates, especially those of early age, in their homes and community surroundings. This thought leads naturally to a consideration of the consultation clinic program instituted during the past year by Dr. Gallivan and the Sanatoria Superintendents, with my enthusiastic approval.

The idea back of the consultation clinic innovation was to see if the resident staffs of the State sanatoria could not be made of greater service to the practitioner in solving this all-important point to the consumptive. It is almost impossible to exaggerate how great a bearing upon the prognosis and ultimate outcome of a case of pulmonary tuberculosis early definite diagnosis has.

The almost disheartened, yet perennially hopeful manner in which tuberculosis institution men, whenever and wherever they get together, begin to discuss the reasons why so great a proportion of admissions are found to be advanced, with definite history of six months, one year, or eighteen months, or even longer, before the family physician convinced them, and they began to think seriously of tuberculosis, is witness to the unsatisfactory feature of our present system. The feeling that, perhaps, sanatoria staffs might be of considerable assistance to the practising physician by placing their specialized skill at their disposal, has been growing for several years.

On the other hand, ever since the war began, our sanatoria medical staffs have always been short-handed and, as a result, have always carried as part of their medical complement, junior physicians, who, in the judgment of the superintendents, had not yet received sufficient training to qualify as chest specialists. This condition being gradually improved as the war became further behind us, Dr. Gallivan and the superintendents decided to try out the consultation clinic scheme this past year.

For the sake of clearness and to do justice to the diagnostic ability of the practising physician, it must be clearly stated that our admission histories prove that a tentative, or possible, diagnosis of pulmonary disease is made early by the attending physician in a large percentage of instances, with the net result that the physician at once loses a patient, the patient next consults another physician, and, in many instances, a third, fourth, and a fifth, and all of them considering the symptoms and signs inadequate for a definite diagnosis, neither suggest the possibility of consumption, until at last the patient finds what he is seeking—someone who will definitely assure him that his condition is a bronchitis or flu sequela, or what not—and, resting in this false hope, the victim goes on until the signs and symptoms have become unmistakable, and finally turns to seek institutional treatment, a moderately advanced case, with previous months worse than wasted.

Now, the significant thing about this routine tragedy is, that in that relatively small per cent. when the patient can easily afford the specialist's fee, and his family physician suggests this, even though stating his fears, in nearly all such instances the patient goes, and if the specialist confirms the practitioner's diagnosis, he not infrequently goes to another specialist, but

when he gets two of them, and in most instances as soon as the first expert confirmation is rendered, he accepts it, accepts it with all the implications that the status of an active consumptive carries, and gratefully grasps at the opportunity for "arrest" that is explained, sets his, or her, affairs in order, and makes early application for institutional admission and treatment.

Fundamentally, it is due to our recognition of this psychological process that goes on in most of us whenever a question of tuberculosis is raised, *i.e.*, a denial of its correctness plus a willingness to accept when the question is answered in the affirmative by one recognized as an authority, that led us to experiment with the consultation clinic idea.

Of only slightly less force, however, is our recognition that the diagnosis of incipient tuberculosis *is* difficult. It is all nonsense for anyone to feel that he can properly expect the general practitioner, or any specialist except an internist actively engaged in chest work, to keep his diagnostic equipment and judgment up to the standard that the suspect ought to have the benefit of. If the general practitioner did enough on that line to fully qualify for authoritative early differential pulmonary diagnosis he, by that very fact, has ceased to be a general man. He must of necessity be devoting so much of his time and brains and energy to this field that he deserves to be classed as a specialist.

On the other hand, any alert practitioner ought to pick out enough danger signs to lead him to desire to have expert confirmation or expert assurance that his fears of pulmonary disease were not justified very early. We feel that in many instances it is the financial obstacle alone that prevents the doctor from obtaining expert advice. It frequently happens, for one reason or another, that the patient will not listen to the suggestion that he seek the excellent diagnostic service of the free municipal or hospital tuberculosis dispensaries.

It was simply in the spirit of endeavoring to fill a public need and to bring to their professional colleagues in general practice expert consultant service, without fee entering into it, to fill the gap which I have just indicated, that the consultation clinics have been instituted.

They should not be confused with the municipal free tuberculosis dispensaries, already of many years' standing and doing a piece of service that our staffs could never remotely approach in volume, and in no wise duplicating or covering the same need that the consultation service does.

The engagement of Miss Emily B. Hartshorn to Dr. Stuart Mudd, Research Fellow of the Harvard Medical School, is announced. The home of Miss Hartshorn is in Haverford, Pa. Dr. Mudd is a son of Dr. and Mrs. Harvey G. Mudd of St. Louis.

Current Literature Department.

ABSTRACTORS.

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Intussusception of the Ileum in Adults, Due to Benign Tumors

Biggs, M. H. (*Surgery, Gynecology and Obstetrics*, November, 1921) writes as follows:

While intussusception is essentially a disease of childhood, it is found in adults with sufficient frequency to make it of surgical importance.

Intussusception in childhood is usually spontaneous. In intussusception in adults a demonstrable lesion can ordinarily be found.

The most common cause for intussusception in the small intestine in adults is a benign tumor.

Benign tumor of the intestine can often be diagnosed before obstruction occurs.

Recurrent invagination is often present previous to obstruction.

After surgical reduction of intussusception, tumor must be sought for and if one is present it must be removed in order to prevent recurrence.

[E. H. R.]

Pathology of Chronic Cystic Mastitis of the Female Breast

Bloodgood, J. C. (*Archives of Surgery*, November, 1921).

The author writes an article of ninety-six pages on this interesting subject which goes into the greatest detail. The contents are grouped under the following headings and the digest of each is amply illustrated by photographs of both gross and microscopic pathology. This is an extremely thorough and painstaking piece of work and adds distinctly to the literature on this subject. It is too detailed, however, for abstracting.

Classification of Chronic Cystic Mastitis (Eight Groups).

Pathology of the Eight Groups in Brief.

Pathology of the Surrounding Breast.

Cancer in the Surrounding Breast.

Incidence of Cancer in Chronic Cystic Mastitis.

Conservative Operation for Different Types of Chronic Cystic Mastitis.

Clinical Diagnosis.

Palpation of Breast.

Exploratory Incision.

What To Do in Case of Doubt.

The Mistake That Should Not Be Made.

The Mistake That Is Made and That Produces No Harm But Mutilation.

The Pathology of the Blue-Domed Cyst.

The Pathology of the Cyst of the Galactocele Type.

The Pathology of the Diffuse Cystic Breast.

The Pathology of the Nonencapsulated Adenoma.

The Pathology of the Nonencapsulated Area of Chronic Cystic Mastitis, Containing One or More Cysts or Ducts.

The Pathology of the Diffuse Dilatation of the Ducts.

The Pathology of the Nonencapsulated Cystic Adenoma.

Is There Such a Tumor as Adenocarcinoma of the Breast?

The Pathology of the Diffuse Nonencapsulated Cystic Adenoma (Schimmelbusch's or Reclus' Disease).

Cancer and Diffuse Nonencapsulated Cystic Adenoma.
Cancer and Chronic Cystic Mastitis.
Conservative Operations for Chronic Cystic Mastitis.
The Microscopic Pictures of Chronic Cystic Mastitis.
Classification of Microscopic Pictures.
Comment on the Microscopic Pictures.
Characteristic Histologic Pictures.
Where Pathologists Disagree.
Contributions of the Author to the Literature on Breast Lesions. [E. H. R.]

THE ACHIEVEMENTS AND LIMITATIONS OF NEUROLOGIC SURGERY

FRAZIER, C. H. (*Archives of Surgery*, November, 1921) presents a most interesting review of this type of surgery since its inception. He speaks particularly of various types of tumors and their treatment, also of the so-called "pseudotumors." He devotes several pages to the trigeminal neuralgia and to surgery of the pituitary body, also to tumors of the spinal cord and surgery of the spinal roots. The article is interestingly presented and worthy of review. [E. H. R.]

A REVIEW OF A YEAR'S SERIES OF INTRACRANIAL TUMORS

LOCKE, CHARLES EDWARD, JR. (*Archives of Surgery*, November, 1921), presents an interesting tabulated review of 255 cases of brain tumor which have passed through the services of Dr. Harvey Cushing during a period of twelve months. The varieties of tumors are described, the visual fields in various forms of tumors are graphically depicted, and the technic variously spoken of. No definite conclusions are drawn for this series. [E. H. R.]

THE RELATION OF SURGICAL TECHNIC TO GASTROJEJUNAL ULCER

ROEDER, C. A. (*Archives of Surgery*, November, 1921), in a very interesting article treats of jejunal ulcer following gastroenterostomy, and believes that the greatest cause of this complication is scar tissue which binds down the mucous membrane of the jejunum. This is due to faulty technic because of the use of mass sutures which pass entirely through all three coats, thus causing strangulation and later immobilization, with scar tissue, of the mucous membrane. He describes a technic by which gastroenterostomy can be performed and these adhesions of scar tissue avoided. This is accomplished by first freeing the mucosa from the sub-mucosa and muscularis along the edges. The mucosa is sutured separately and the other coats afterward. This gives a free mobile mucosa, and the author believes has great bearing on the non-development of jejunal ulcer. [E. H. R.]

PREGNANCY AND TUBERCULOSIS

BERNARD, L., in *La Presse Médicale*, November 16, 1921, states that, of 164 cases of tuberculosis seen among women, 31 gave a history of pregnancy or of recent confinement. He concludes:

1. Pregnancy and confinement exert an undoubted influence on tuberculosis.
2. Arrested tuberculosis is often aggravated during pregnancy.
3. Early tuberculosis is more likely to light up following confinement, especially if the mother nurses the baby.
4. Localized, healed tuberculosis shows little chance of becoming active during pregnancy.
5. In pregnancy the woman loses her natural immunity to the tubercle bacillus.
6. Interruption of pregnancy is not a reasonable procedure except in advanced cases. [E. M. D.]

THE ASSOCIATION OF SKIN WITH VISCERAL TUBERCULOSIS

LANCASHIRE, G. H. (*British Medical Journal*, October 8, 1921) presents the result of his work and of others in regard to this subject, concluding:

1. That whereas the casual relationship of primary visceral with secondary cutaneous tuberculosis is already established.
2. The contrary causal relationship is not yet definitely proved. That probably infection of the viscera from the skin does occasionally occur, but that the majority of cases of cutaneous tuberculosis in this respect remain "good lives." [J. B. H.]

THE TECHNIQUE OF GALL-BLADDER SURGERY IN THE PRESENCE OF JAUNDICE

CRILE, GEORGE W. (*Surgery, Gynecology and Obstetrics*, November, 1921) summarizes his method as follows:

Before operation employ saline infusion, blood transfusion and heat.

At operation employ analgesia, local anaesthesia, means to maintain temperature of liver, decompression of bile, nothing more.

After operation employ blood transfusion; saline infusion, 3,000 to 4,000 cubic centimeters; application of heat to liver; intermittent drainage of bile.

Avoid deep inhalation anaesthesia, needless handling, morphine, doing too much. Decompress and no more. [E. H. R.]

FACIAL PARALYSIS

GIBSON, A. (*Surgery, Gynecology and Obstetrics*, November, 1921).

The author presents a very interesting and thorough paper on this subject. He discusses specially etiology, prognosis, and devotes the greater part of his paper to treatment. He believes that the most successful operative procedure at the present time is that of facio-hypoglossal anastomosis, although this and any other operative procedure is largely influenced by the features of personal equation of the surgeon, the duration of the lesion, its situation, and a great many other simple but often not appreciated factors. The article is too detailed for brief abstraction, but is of distinct value. [E. H. R.]

THE TREATMENT OF PYELITIS.

KRETSCHMER, H. L. (*Surg., Gyne. and Obstet.*, December, 1921), writes as follows:

Pelvic lavage with silver nitrate is an efficient, simple method for treating infections in the renal pelvis.

In this series of cases 66.4% of the patients treated were finally discharged with urine sterile and free of pus.

In selecting cases for treatment, lesions of the urinary tract of a surgical nature must be excluded.

Lesions of the abdominal viscera which may be factors in contributing to relapses or rendering this treatment inefficient must be recognized and subjected to appropriate treatment.

Special stress must be laid upon giving the proper attention to lesions of the gastro-intestinal tract.

Lesions of the male and female genital tracts must receive appropriate treatment.

Careful routine examinations of the urine in all cases of obscure abdominal pain should be made before patients are subjected to surgical operation. [E. H. R.]

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THE MENTAL HYGIENE MOVEMENT.

FOR the promotion of public health it is necessary that medical research and popular education in medical matters go hand in hand. The results obtained in the laboratory and in the wards are of little avail unless people are interested in the topics, willing to make use of the knowledge gained, know when and where to go for help, and coöperate in organized preventive measures.

It is not enough for the surgeon to know that early operation in cancer is of the greatest benefit; the community must have some information as to the nature of the early symptoms, and as to the favorable outlook with early treatment. It is not enough for the physician to know the advantages of the early treatment of tuberculosis, the public at large must have the importance of early treatment brought home to it. To eliminate typhoid fever the community must realize the relationship between the disease and the water supply, and be willing to finance the necessary community arrangements.

So in regard to mental disorders and defects, it is not sufficient for special workers to make detailed researches into their cause, prevention and treatment; the public must also know something of these facts.

It is more difficult to present this subject in a simple and appealing way than is the case with other health movements; the mental hygiene movement, one of the most important health movements of the present day, is thus handicapped by the very scope of its work, and by its close relationship to so many of the major issues of social life.

One may say that the medical profession in general has shown a rather step-motherly attitude to this discipline, and has not as a whole kept in close touch with the progress in the study of mental disorders. The old psychiatry was largely asylum psychiatry, which found its clinical material in the serious cases committed to state hospitals. The attitude of the physician to mental disorders was, therefore, rather special; in regard to other diseases his attention was not so persistently fixed on the most severe conditions, on inoperable cancers, on advanced tuberculosis with cavity formation. The new psychiatry does not have as its chief field of work the state hospital with its severe and advanced cases; it takes up the incipient and borderline cases seen in out-patient clinics and in general hospitals; it studies the mental disorders which masquerade under the form of physical invalidism or of some disorder of conduct, such as alcoholism, delinquency, vagrancy, social or industrial turbulence; it is especially interested in the beginnings of mental and nervous disorders in the child period; it reaches back to the pre-school age.

Prevention is the keynote of much of the work done by the new psychiatry; to put into effect definite measures to deal with these problems requires the coöperation of the community with the medical profession.

As in regard to tuberculosis, so in regard to mental disorders; early treatment is of the greatest importance. Early treatment involves, on the part of the patient and relatives, early attention to symptoms, willingness to take advantage of facilities for diagnosis and treatment; and on the part of the community, it means the provision of the same decent facilities for advice and treatment as exists with regard to other diseases. A man with surgical injury or with cardiac or gastric symptoms, no matter what his financial status may be, knows where to go for aid, and does not hesitate to take advantage of it. In the early stages of mental disorder, when much might be done by an honest attempt to understand and treat the condition, relatives tend to conceal or evade the situation, physicians too often make no detailed analysis of the change in the patient's conduct or mood and of the specific causal factors; general hospitals look askance upon such patients, and even in the largest cities there are few hospitals which have out-patient departments where these important disorders can be treated. When, finally, it is unavoidable that the patient should receive treatment in a mental hospital,

in many states admission is only after a complicated procedure, trial before a jury and a sojourn in the jail sometimes forming a distressing element in the tragedy, not without its effect on the outcome of the sickness.

The cure of this state of affairs, with its mediaeval color, is the education of the public in a common-sense view of these disorders, the education of physicians in the study and treatment of the early stages of mental disorders, the provision of out-patient facilities within easy reach of the average citizen, and of hospital facilities which will be on a par with the hospital facilities for other disorders.

The study of mental disorders shows that often the roots are to be traced to the early influences of childhood; not infrequently early danger signs were in evidence during the school period. If the school is to train children for life, and not merely for college, and if the school has some responsibility for the health of the child, it will have to conceive health in a broader sense than merely as a function of nutrition, resistance to infection, sight and hearing; it will pay some attention to evidence of emotional tension or instability, to wayward traits, to unhealthy habits and social maladjustment. This means a teacher with some insight into the biological characteristics of childhood; it means giving mental hygiene a prominent position in the curriculum of the normal school and college; it means a school physician who knows something about the psychopathology of childhood; it means a school nurse who has had some contact with the nervous disorders of the child and knows about their relation to environmental factors.

Even before the children are of school age it is possible, with efficient community organization and sound medical advice to do much for mental hygiene. Official medicine pays, as yet, little attention to the early formation of habits in regard to food and sleep, and adaptation to the demands of group life, so that tantrums, night terrors, wilfulness as to food habits, anomalous sex activities, odd emotional reactions, receive only incidental attention from physician and nurse. Yet the later personal health of the individual, and his value as a social unit, may depend on the wise management of these early problems.

The above merely touches some of the most obvious problems of this department of preventive medicine.

There is no space to do more than refer to that large army of patients masquerading as gastric, cardiac, genito-urinary, gynaecological invalids, whose symptoms are the expression of fundamental difficulties of adaptation to their human tasks; official medicine treats them in a shabby and superficial manner, and the flourishing condition of many cults is a witness to this failure.

Nor is it possible here to take up the important medical aspect of such problems as alcoholism, delinquency, prostitution, etc.

The point to be emphasized is that the morbid conditions referred to above, whether distinctly called mental disorders or not recognized as such, are as open to study as any other diseased reactions; that a great body of knowledge is available in relation to these problems, and that the time has come to organize on a sound basis preventive work in this branch of medicine.

In the interests of public health, we would recommend:

1. Progressive research into the nature of mental disorders.
2. The establishment of adequate facilities for diagnosis and treatment of early mental disorders in the wide sense of this term.
3. Dissemination of knowledge with regard to these topics among the community at large.
4. A proper emphasis on this branch of medicine in the training of physicians and nurses.
5. Special emphasis on this branch of medicine in the training of all nurses who are going to work in the homes of the community as public health nurses, child welfare nurses, instructive visiting nurses, school nurses, etc.
6. Adequate instruction in mental hygiene for all teachers, and a school organization such that the child with personal problems and emotional difficulties will receive attention, as well as the child with retarded intelligence.
7. Adequate facilities in the courts for the study of those who present indications of either mental disorder or defect, and of juvenile delinquents in general.
8. Introduction into the working principles of all health and charitable organizations of the basic principles of mental hygiene.

It is obvious that this central organizing and coördinating work cannot be carried out altogether by a Federal or State Bureau, and that volunteer organization will be necessary for a considerable period. The Massachusetts Society for Mental Hygiene and the National Committee for Mental Hygiene are at the present moment putting before the community the nature of the work in this field and inviting moral and financial support. The interest shown in a series of meetings in Boston and the vicinity has been very great, and is an indication of the important social need which has called forth these organizations,

THE COUNCIL MEETING.

THIS meeting, held February 1st, was well attended and the business promptly dispatched. But the volume was so great that about two and one-half hours were consumed without delay ometimes incident to long discussions. The

business details and changes in membership will appear later in the Secretary's record. The report of Dr. Frothingham was a clear statement of the theories and methods of osteopathy and chiropractic, and placed in available form about all that is known of these systems. The recommendation that time and money be expended in further study and analysis, is logical, for although it was clearly stated that there is no evidence that either of these systems have any advantages in remedying conditions with known pathology, the mere fact that testimony tends to show that some relief has followed manipulation by these practitioners in unclassified disorders, needs scientific investigation, under methods of control, so that wrong interpretation would be eliminated.

Dr. Stone's reference to the chiropractic bill now before the legislature, was a fitting addendum to the report of Dr. Frothingham's committee, and should lead to a full understanding of the importance of combating the propaganda for State recognition which would break down the standards of this Commonwealth relating to the practice of medicine.

The report of Dr. Gage for the Committee on Rural Health and Sanitation, was a careful analysis of the problems involved and the difficulties in the way of a satisfactory solution of them. The vital importance of better health conditions in the smaller towns and the difficulties inherent in providing adequate medical service, were set forth, and the suggestions made that nothing should be done to discourage the development of the type of the resourceful country doctor who had been of inestimable value in dealing with the perplexities of general practice. In recognition of the functions imposed on, and quality of work done by, the Committee on Public Health, the report recommended that the responsibility be transferred to that last-named committee.

Dr. Bigelow, of the Committee on Public Health, asked for an appropriation of $2500 for the employment of a field agent. It was quite evident that the members of the Council had no clear conception of the possibilities for good in the work of a field agent, and although it was generally known that Dr. Bigelow's committee had done a great amount of good work and shown great interest in promoting better health, the Council felt that the matter should be considered by the Committee on Membership and Finance, and will wait for its report.

One of the most pleasing incidents of the meeting was the cordial invitation of the Pittsfield Medical Society to the Massachusetts Medical Society, for holding the annual meeting in 1923 in Pittsfield, through Dr. Merrill. There was an enthusiastic acceptance of this invitation, and many expressions of pleasant anticipation of the outing features which would tend to relieve the monotony of scientific discussions. This evidence of interest in the Society from Berkshire is gratifying.

The election of Dr. Edwin H. Brigham to the office of librarian *emeritus*, was a graceful recognition of the long service rendered by Dr. Brigham. The modest annuity recommended by the Committee on Membership and Finance was enthusiastically approved.

Before closing, the President made an earnest plea for active interest in legislative matters and assistance for the efforts of the Committee on State and National Legislation.

MEDICAL NOTES.

THE JOURNAL has been fortunate in being able to secure, at times, interpretative editorials on medical subjects. Last week, the article on pneumonia, and in this issue the one on mental hygiene, are from authoritative sources.

THE Medical Faculty of Vienna is offering for January, February and March, 1922, extensive post-graduate courses in nearly all branches of medicine. An especially detailed course in Diseases of the Digestive Tract is offered. In June, 1922, will be given a course on Progress in Internal Medicine and Allied Subjects, with Especial Reference to Therapeutics. For detailed information, address Prof. Dr. Arnold Durig, Dekan der Wiener medizinischen Fakultät.

DR. STORER HONORED.—OLDEST LIVING GRADUATE OF HARVARD CONGRATULATED BY RHODE ISLAND HARVARD CLUB.—Dr. Horatio R. Storer, the oldest living graduate of Harvard, who will be 92 years of age February 27, was honored by the Harvard Club of Rhode Island, which held its annual dinner in Providence recently. The Secretary was directed to send a congratulatory message, which was received by Dr. Storer at his home on Washington Street. The message was as follows:

"Dr. Horatio R. Storer, 58 Washington Street, Newport, R. I. The members of the Harvard Club of Rhode Island, assembled tonight for their annual dinner, extend their heartiest congratulations and good wishes to Harvard's oldest living graduate.

"PAUL A. MERRIMAN, *Secretary.*"

—*Newport, R. I., News.*

REWARD FOR CURE OF CANCER.

IT is reported that Sir William Veno, of Manchester, England, has offered $50,000 as a supplementary prize to the $100,000 offered by Lord Athalstan, of Montreal, for the discovery of a cure for cancer within five years. The cure must satisfy the Royal College of Physicians and Surgeons of London.

NEWS ITEMS RELATING TO TUBERCULOSIS.

ON January 23, Dr. John B. Hawes, 2nd, gave an illustrated talk before the Cambridge Medical Improvement Society on the subject of "Tuberculosis in Childhood, and Its Prevention."

On Thursday, February 2nd, Dr. Hawes spoke before the Norfolk County District Medical Society on "The Diagnosis and Treatment of Tuberculosis in Adults and Children."

The Executive Committee of the Boston Tuberculosis Association has decided that the Prendergast Camp, now used for a few ex-sanatorium patients, will be opened as soon as possible for approximately twenty children during the spring, summer and fall months. These children will spend both day and night at the camp. Certain alterations will be made in order to accomplish this plan. Dr. William H. Devine, Director of School Hygiene for Boston, has given assurance of support from the city for teaching and equipment. While this plan is not ideal it is believed that a demonstration can be made which will appeal to the citizens of Boston so that necessary funds can be raised, and thereby the institution will be able to care for a large number of children throughout succeeding years.

Dr. Hawes has an excellent set of lantern slides, showing Preventoria and work among children at Toronto, Detroit, and elsewhere, which are available for talks and demonstrations on the subject, for any organization desiring this material.

The Boston Association will be glad to try to provide speakers.

Applications may be made to Dr. Hawes, 11 Marlboro Street, Boston, or Miss Billings, at the Association rooms, 3 Joy Street, Boston.

THE LEGISLATURE.

CHIROPRACTIC.

House—No. 631.

Accompanying the petition of Harry N. Gutermah, relative to chiropractic, has been referred to the Committee on Public Health.

The act regulates the Practice of Chiropractic and provides for the Examination and License of Chiropractors and the Appointment and Maintenance of a Board of Examiners.

It provides as follows:

Section 1. Any person shall be eligible for examination after the passage of this act, who is a graduate of a recognized incorporated school or college of chiropractic, giving adequate courses of anatomy, physiology, symptomatology and diagnosis, hygiene and sanitation, chemistry, histology, pathology, principles and practice of chiropractic, requiring actual attendance for three school years of not less than six months each, provided that after January first, nineteen hundred and twenty-three, every such applicant for examination shall submit to the examining board here constituted satisfactory proof of his possession of a preliminary education equal to that of a standard high school.

Section 2 directs that applicants shall make written application for examination of the board, and shall pay a preliminary fee of fifteen dollars. The application shall state the name, age, sex, and the residence of the applicant; the name and location of the school or college of which he graduated, the length of time devoted to the study of chiropractic, the date of graduation, the experience of the applicant, if any, in the care of the sick as interne or clinical assistant under any regular licensed preceptor. The application shall be signed and verified by oath of the applicant.

Section 3 creates for the purpose of examining applicants for license as chiropractors, a board of chiropractor examiners, which shall be appointed by the governor, and shall be composed of three members who are fully equipped and qualified chiropractors.

Section 4 deals with the organization of the board. Members shall hold office for three years, provided that the term of office of one member shall expire in one year, one in two years and the other in three years, and one member annually thereafter, and shall elect a president and secretary-treasurer annually, and shall adopt rules and regulations. No appointment to fill a vacancy shall be made of any person who has not been continuously engaged in the practice of chiropractic within the state of Massachusetts for one year next preceding such appointment.

Section 5 provides that the board of examiners shall hold regular sessions for examinations of candidates to practice chiropractic, and other business.

Section 6. The board shall conduct written examinations in anatomy, physiology, symptomatology and diagnosis, hygiene and sanitation, chemistry, histology, pathology, obstetrics, gynecology, spinography, orthopedia, adjustology, and principles of chiropractic, and shall further require each candidate for license to give a clinical demonstration of vertebral palpation, nerve tracing and adjusting. Each candidate must answer correctly at least sixty per centum of the questions propounded in every subject and seventy-five per centum of questions propounded, besides making satisfactory clinical demonstration, to be entitled to a license. When it shall have been determined by the board of examiners that any candidate has passed successfully the examination and has made satisfactory demonstration of the clinical

art, and is a person of good moral character, there shall be issued to such candidate a license to practice chiropractic, which must be countersigned by the president and the secretary-treasurer of the board of examiners and authenticated by the official seal. The fee for the license shall be five dollars and shall be paid to the secretary-treasurer of the board of examiners before the delivery of the license. Before any chiropractor shall be allowed to practice his profession in this state his license shall be recorded in the office of the recorder of the county in which he resides, or practices his profession, and the county recorder of such county shall record such license and the fee therefor shall be fifty cents. Any one failing in his examination shall be entitled to a second examination, without further fee, at the next regular session.

Section 7. Any person who has been bona fide, regularly and continuously engaged in the practice of chiropractic in the State of Massachusetts on the passage of this act and who shall have submitted to the board of examiners proof of good moral character and evidence that he possesses the degree of knowledge and skill required in section one hereof, or its equivalent in the discretion of this board, shall be granted a license without examination, and any other person who is in actual practice in the state of Massachusetts at this time and of good moral character shall receive a license to practice chiropractic in the state after having passed a satisfactory examination in anatomy, physiology, symptomatology and diagnosis, histology, pathology, hygiene and sanitation, chemistry, histology, pathology, obstetrics, gynecology, spinography, orthopedia, adjustology, and principles and practice of chiropractic, such license shall be issued, upon the payment of the fee of twenty dollars, to the secretary-treasurer of the board of examiners and shall annually thereafter, pay a renewal fee of two dollars per annum, provided, however, the application for such license shall be made within thirty days after the appointment of board of examiners. Provided further that any person holding a license issued by the board of any other state, having requirements equal to those provided in this act, shall be entitled to license without examination at the discretion of the board upon payment of the fee of twenty dollars and furnishing to said board of examiners satisfactory evidence of his good moral character.

Section 8. Any school or college duly organized and incorporated giving a course of study in the following subjects: anatomy, physiology, symptomatology and diagnosis, hygiene and sanitation, chemistry, histology, pathology, obstetrics, gynecology, spinography, orthopedia, adjustology, and principles of chiropractic, requiring an attendance of three school years of six months each, is hereby determined to be a standard school of chiropractic and subject only to the limitations of this act, and entitled to every privilege of other schools and colleges of healing in this state.

Section 9. The board of examiners may refuse to grant a license to any person otherwise qualified and shall revoke any license issued by it to any chiropractor who is not of good moral character, or who solicits professional patronage by agents, or who is guilty of false and fraudulent representations as to his skill and ability, or who is guilty of gross unprofessional conduct, or for incompetency, or for habitual intoxication or use of narcotic drugs or for fraud or deception in the procurement of his license. The right to a hearing and the right of appeal are provided for in other clauses.

Section 10. The practice of chiropractic shall be deemed to be the adjustment by hand of the articulations of the spine and other incidental adjustments according to chiropractic methods; but it shall not include operative surgery, osteopathy, nor the administration or prescribing of any drug or medicine now or hereafter included in materia medica. Chiropractors shall, subject to the limitations of this act, be entitled to all the rights and privileges of physicians and surgeons and shall be subject to all the duties and obligations prescribed by the statutes of this state in so far as the same are not inconsistent with the provisions of this act. Every chiropractor shall place on all signs used by him, and display prominently in his office the word "chiropractor."

Section 11 provides against fraudulent representations and crimes.

Section 12 provides for the financial details of the board management.

Section 13 provides that the act "shall take effect and be in force on and after its publication in the Massachusetts capitol newspapers published in Boston, Massachusetts, without expense to the state."

This bill represents a peculiarly insidious and dangerous attempt to undermine and nullify the present admirable provisions of the statutes regulating medical registration. The courts have recently defined very clearly what constitutes the practice of medicine. Under this definition osteopathy is the practice of medicine, and chiropractic must inevitably be so considered. Therefore to be registered for the practice either of osteopathy or chiropractic, one must first demonstrate to the Board of Registration one's qualification to practice medicine. The attack which the chiropractors contemplate upon this fundamental and essential regulation will be presented with all the energy of effort and expenditure of funds which have characterized their campaigns in other states, and it cannot be too earnestly urged upon all members of our profession that they

have a duty in explaining to their friends, and more particularly to the representatives of their district, the menace which lies in an apparently innocent bill.

MATERNITY AID.

In addition to the bill which would carry out the recommendation of the Department of Public Health that the State accept the provisions of the Sheppard-Towner bill, other measures have been introduced.

House 966 introduced, on petition of Wendell P. Thore, provides among other matters, for invalid pensions. Under its provisions, every person over twenty years old, not an alien, residing in the state for at least twenty years, who has become permanently incapacitated or blind, who is not receiving other support or has claims for adequate support from others, is eligible for a pension, the amount of which would be determined by the authorities.

Maternity benefits are specifically included in the following sections:

"Every woman in need about to become a mother, shall, while in this commonwealth, be qualified to receive the maximum pension allowed under this act, and shall be furnished with all necessary medical, surgical, nursing, obstetrical or other aid, material or appliances during the maternity period.

"The maternity period of any pensioner shall not exceed nine weeks, of which six shall be subject to delivery of child, and any woman receiving a pension under this section must abstain from gainful employment during the payment period of such pension.

"In cases of extreme need of a pensioner under this section, the central pension authority, or others authorized by him, may increase the amount for such pension period, but a pension for such period shall not exceed fifty dollars."

Senate 62 provides for aiding mothers with dependent children.

Miss Spencer has again introduced her bill (Senate 259). This bill has been thoroughly discussed in previous years. It is a poor relief measure which imposes upon the Department of Health the duty of investigating the needs of applicants for aid and the granting of aid to those found worthy. Under the provisions the applicant would receive and must accept instruction in general hygiene and infant care, hospital care or home nursing or medicine and medical care and other necessary obstetrical care, and, if necessary, would receive financial aid of not more than twelve dollars a week.

Maternity cases are not to be treated by a city or town physician. The recipient of aid may choose her own physician and registered nurse, subject to their acceptance of the fee table and other regulations established by the Department of Public Health. The minimum fee for the physicians is set at fifteen dollars.

This bill has been opposed by your Joint Committee. It will be heard before the Committees on Public Health and Social Welfare, sitting jointly.

RABIES.

House 744, on petition of Herbert A. Bartlett, directs that the Department of Public Health manufacture and distribute antirabietic serum, to be sold at a price not to exceed $40 for a complete treatment.

SALARIES.

House 766 provides that the maximum compensation of the chairman of the Board of Registration of Nurses be increased by omitting in the case of that member of the board the provision that the total compensation to any member shall not exceed one hundred and fifty dollars a year. The law provides for five dollars a day for each day spent in performance of duties, but fixes a maximum.

Senate 194 provides, on petition of Walter C. Myers, that the compensation of the heads of departments and members of boards and commissions be reduced as follows: $3,000–$3,500, 5 per cent.; $3,500–$5,000, 10 per cent.; $5,000–$7,500, 15 per cent.; $7,500 and over, 25 per cent. The bill provides further, that the members of the Board of Dental Examiners, the Board of Registration in Embalming, and the members of all other boards or commissions meeting less frequently than once in every two weeks during the year, shall be paid at the rate of eight dollars for each meeting attended, and in no case more than four hundred dollars a year.

Senate 178, introduced on petition of Frank A. Murphy provides that the Trustees of Tuberculosis Hospitals shall receive such salaries as the Governor and Council may determine.

The trustees are the county commissioners under existing law.

VACCINATION.

The opponents of vaccination have introduced another bill (House 1056) which strikes out entirely all reference to vaccination as a prerequisite to admission to public schools.

MISCELLANEOUS BILLS.

Two bills (House 912 and House 913) have been introduced to make insanity a ground for divorce, after five years confinement in an institution, and if the condition is considered incurable.

Several bills have been introduced which provide that the State take over the County Tuberculosis Hospital (House 613 and House 875). House 781 provides that this be done in the case of the Essex County Tuberculosis Hospital in Middleton.

On petition of Dr. Kline, House 1058 provides that the Massachusetts School for the Feeble-Minded be known as the Massachusetts State School.

On petition of Dr. E. H. Bradford, Senate 293 is introduced, which will permit the Department of Health, in order to prevent blindness or deafness, to send patients to the Massachusetts Charitable Eye and Ear Infirmary, or other hospital, for treatment, and to pay such parts of ordinary and reasonable charges as the patients are unable to pay.

House 1057, introduced on petition of John G. Gordon, contains the following drastic provisions.

"No nurse or attendant in any hospital or asylum, public or private, shall be allowed to remain on duty more than eight hours during any one day, nor be allowed to sleep in the same room or in a room adjoining and communicating with any room where any patient is kept, or in any room to which patients have access."

Senate 292, introduced on petition of Thomas F. Donovan, would meet the needs of small towns, thus:

"The governor shall appoint ten doctors in areas which have no doctor and pay them the sum of fifteen hundred dollars."

House 745 and House 746: the first requiring the physical examination of persons employed in hotels and restaurants, and the second requiring inspection by boards of health of hotels, restaurants, storerooms and larders, have been already reported leave to withdraw.

Obituaries.

DORVILLE MILLER WILCOX, M.D.

Dr. Dorville Miller Wilcox, of Lee, Mass., died at Pittsfield, January 24, 1922.

Dr. Wilcox was born in 1841, attended the Berkshire Medical Institution in Pittsfield, receiving an M.D. there in 1866, the year before the school closed its doors, and practised until a few years ago, in Lee. He served in the Union forces during the Civil War, from 1861 to 1864, practised a short time in New York State, for a year in Becket, and in 1888 in Falls Village, Conn. From 1870 to 1889, he was a fellow of the Massachusetts Medical Society. For forty-five years he was a member of the school committee of Lee, and was also medical examiner for that district.

Dr. Wilcox was a collector of Indian relics, leaving a fine collection, and his extensive library was rich in biography and local history. A wife and children died several years ago.

HARRISON GRAY BLAKE, M.D.

Dr. Harrison Gray Blake died on his fifty-eighth birthday in his native town of Woburn, January 26, 1922. The son of Ebenezer Norton and Harriet Cummings Blake, he lived all his life in the house in which he was born. He was educated in the Woburn schools and in the class of 1888 in Harvard Medical School, joining the State Medical Society in the same year. From 1897, Dr. Blake was medical examiner for the Fourth Middlesex District for two terms, and then was city physician and school physician of Woburn. He was a member of the Massachusetts Medico-Legal Society. His health was undermined during the influenza epidemic, when he acted as assistant to the State Department of Health in combating that disease, and had been failing since. He is survived by two daughters and three sons, his wife, who was Miss Lizzie Dodge, of Woburn, having died over five years ago.

WILLIAM ROWLEY, M.D.

Dr. William Rowley died at his home in Lanesville, Gloucester, January 29, 1922. He was born in Oreston, England, in 1864, came to this country with his parents while yet a boy, studied medicine at the Baltimore Medical College, taking his M.D. in 1893, and settled in Lanesville, where he became a busy general practitioner. Among the first to use an automobile to make professional visits, he covered the northern side of Cape Ann in a strenuous practice, wearing out many cars. In 1897, he joined the Massachusetts Medical Society, and at the time of his death was a member of the staff of the Addison Gilbert Hospital.

He leaves a widow, whose maiden name was Nellie Saunders, a daughter, and a son, Philip William, a graduate of Tufts College Medical School, a member of the State Medical Society, and now city physician of Gloucester.

Miscellany.

THE SPEECH READERS' GUILD.

AN ANNIVERSARY.

It is to be supposed that few, if any, physicians outside of Boston, and probably only otologists in that city, are acquainted with the activities of a club that celebrated its sixth birthday on Friday, January 20th, at its comparatively recent home at 339 Commonwealth Avenue. The club referred to is The Speech Readers' Guild of Boston, Inc., and boasts a membership of five hundred men and women, all but a very few of whom are at least partially deaf. Active membership, with the power to vote and hold office, is accorded only to the hard of hearing. There are a few associate members who can hear.

This club is deserving of the sympathy, respect and support of the medical profession for

many reasons. It was founded six years ago, by 35 deafened women, who felt that the need for self-expression was paramount with the deaf. Sensitive, and shrinking from the outside world, on account of their infirmity, too many people give up the unequal struggle, and lapse into a state of melancholy and indifference that soon becomes morbid. Every doctor knows that, in order to aid the power of hearing, he must build up the entire nervous system. Happiness is the best road to this end, and happiness can never be found in utter seclusion. As this club, which is composed of, and entirely officered by the partially or wholly deaf, exists for the one purpose of bringing back to normal activity and happiness the lives of those cut off from the world by the handicap of deafness, it is the one place to which the doctors should direct their patients, and which can materially aid in the readjustment of lives.

As its name suggests, speech reading is among the first aids it offers. Though it does not profess to teach speech reading, it stimulates all to study that eye language, and offers many and various classes and entertainments which aid much in its development. The wonderful sympathy and understanding of all the members make each new-comer feel at home at once, while the nominal due of one dollar a year opens the door to rich and poor alike. There is never any impatience at a failure to comprehend the spoken word, for all are too keenly aware of their own limitations to be unjust to others.

Apart from this spiritual uplift, which goes so far to stimulate recovery, the Guild has now at its disposal other aids of a more material nature. The Guild House is equipped not only for the accommodation of its transient members, but has furnished rooms to rent to any student of speech reading, or to any patient who may want to come to Boston for treatment.

For the information of physicians be it said, that a person does *not* have to be a member of the Guild to avail himself or herself of the privileges of renting a room and obtaining meals at the Guild. If a person is deaf, and needs just the sort of protection and interest the Guild can offer, he is welcome to seek its hospitality. Thus, if a physician in some town should feel it advisable to send his deaf patient to Boston for special treatment, he would be at liberty to direct the patient to 339 Commonwealth Avenue, and be sure of gaining entrance there, provided there was a vacancy—which it would be well to ascertain beforehand.

Though hoping, in the course of a few years, to be on a paying basis, the Guild has grown so rapidly that, at present, its activities have far outdistanced its income, and it is as worthy a cause for charity as can well be found.

Every physician is welcome, at any time, to visit the Guild House, which is open daily, except Sundays and holidays, from nine to five. And almost every evening will find some of its members there, engaged in either class work or recreation of various kinds.

(Mrs. Charles D.) ANNIE R. KNOWLTON,
Director and Chairman of Educational Committee of The Speech Readers Guild.

FEDERAL INCOME TAX.

WHO? Single persons who had net income of $1,000 or more, or gross income of $5,000 or more. Married couples who had net income of $2,000 or more, or gross income of $5,000 or more.

WHEN? March 15, 1922, is final date for filing returns and making first payments.

WHERE? Collector of internal revenue for the district in which the person lives, or has his principal place of business.

HOW? Full directions on Form 1040A and Form 1040; also the law and regulations.

WHAT? Four per cent. normal tax on taxable income up to $4,000 in excess of exemption. Eight per cent. normal tax on balance of taxable income. Surtax from 1 per cent. to 65 per cent. on net incomes over $5,000 for the year 1921.

In making out his income tax return for 1921, the average taxpayer will find a considerable saving in comparison with the amount of tax paid on the same income for 1920.

The exemptions provided by the revenue act of 1921 are $1,000 for single persons (the term including widows, widowers, divorcees, and persons separated from husband and wife by mutual agreement), $2,500 for married persons whose net income was $5,000 or less, and $2,000 for married persons whose net income was $5,000 or more. Under the revenue act of 1918 the personal exemption allowed a married person was $2,000, regardless of the amount of net income. The personal exemption allowed a married person applies also to the head of a family, man or woman, who supports in one household one or more relatives by blood, marriage, or adoption.

The exemption for dependents—a person who receives his chief support from the taxpayer and who is under 18 years of age or incapable of self-support because mentally or physically defective—is increased from $200 to $400.

The act requires that a return be filed by every single person whose net income for 1921 was $1,000 or more, every married person whose net income was $2,000 or more, and by every person—single or married—whose gross income was $5,000 or more.

The requirement to file a return of gross income of $5,000 or more regardless of net income is a new provision. Net income is gross income less certain specified deductions for business expenses, losses, bad debts, etc., which are fully explained on the forms.

Returns must be filed by married couples whose combined net income for 1921, including that of dependent minor children, equaled or exceeded $2,000, or if the combined gross income equaled or exceeded $5,000.

The period for filing returns is from January 1 to March 15, 1922. Heavy penalties are provided for failure or "willful refusal" to file a return on time.

Forms 1040A for incomes of $5,000 and less, and 1040 for incomes in excess of $5,000, may be obtained from the offices of collectors of internal revenue and branch offices. The tax may be paid in full at the time of filing the return, or in four equal installments, due on or before March 15, June 15, September 15, and December 15.

Changes in the revenue law are of material benefit to the average family man. Under the revenue act of 1921 a married person, living with wife or husband, whose net income for 1921 was $5,000 or less, is allowed a personal exemption of $2,500. Under the revenue act of 1918 the exemption allowed a married person was $2,000, regardless of the amount of net income.

The normal tax rate is the same—4 per cent. on the first $4,000 of net income above the exemptions, and 8 per cent. on the remaining net income. Given his personal exemption of $2,500, plus $400 for each dependent, a married man with three children—the average American family—will pay, this year, on a net income of $4,000, a tax of $12. On the same income for 1921, he would have paid a tax of $56.

Every citizen and resident of the United States must determine for himself whether his income for 1921 was sufficient to require that a return be filed. Full instructions for making out a return are contained on the forms, a copy of which will be sent to taxpayers who filed a return last year. Failure to receive a return, however, does not relieve a taxpayer of his obligation to file a return on time, on or before March 15, 1922. Forms may be obtained from collectors of internal revenue and branch offices.

INFANT MORTALITY IN 1921.

The Department of Commerce, through the Bureau of the Census, announces that provisional infant mortality rates in 51 cities, based on estimated births for 1921, and the weekly telegraphic reports of deaths to the Bureau of the Census, indicate record low rates throughout the country last year.

For the group of 51 cities the infant mortality rate is 74 per 1,000 births as against a rate of 90 in 1920 for 44 cities. The lowest infant mortality rate—47 per 1,000 births—appears for the cities of Portland, Oregon, St. Paul and Seattle, and the highest rate — 111 — for Fall River.

The greatest decrease since 1920 appears for Lowell, with a rate of 90 for 1921 against a rate of 135 for 1920.

No city shows a higher rate for 1921 than for 1920, though Albany and Salt Lake City maintain the same rates for the two years—77 and 72, respectively.

Below appear infant mortality rates (deaths under one year of age) for a few Massachusetts cities in the birth registration area, for 1920 and 1921:

Boston: In 1921, births, 19,536; deaths, 1,483; per 1,000 births, 76. In 1920, deaths, 1,966; per 1,000, 101.

Cambridge: In 1921, births, 2,856; deaths, 192; per 1,000 births, 67. In 1920, deaths, 274; per 1,000, 96.

Fall River: In 1921, births, 3,537; deaths, 413; per 1,000 births, 111. In 1920, deaths, 458; per 1,000, 129.

Lowell: In 1921, births, 3,154; deaths, 279; per 1,000 births, 90. In 1920, deaths, 425; per 1,000, 135.

New Bedford: In 1921, births, 3,507; deaths, 347; per 1,000 births, 99. In 1920, deaths, 429; per 1,000, 122.

Springfield: In 1921, births, 3,419; deaths, 238; per 1,000 births, 68. In 1920, deaths, 290; per 1,000, 85.

Worcester: In 1921, births, 4,809; deaths, 370; per 1,000 births, 77. In 1920, deaths, 410; per 1,000, 85.

ANNUAL REPORT OF THE BOSTON CITY HOSPITAL.

There has just come to hand the fifty-seventh annual report of the Trustees of the Boston City Hospital. This report covers the period February 1, 1920, to January 31, 1921. From the standpoint of hospital economics, it is interesting to note that the cost per day for a ward patient was $3.70, and the cost per visit for an out-patient was 71 cents. The cost of uncooked food per day, per patient, was 52 cents.

From the medical point of view, the activities of the special services, called the Blood Service and the Pneumonia Service, were of particular interest. The members of each of these services have published a number of papers concerning the research as undertaken by them. These publications attest to the value of intensive study.

To quote from the report:

"The chief accomplishments for the past year are summed up as follows:

"The establishment of a pneumonia laboratory.

"Installation of a new special diet kitchen for the preparation of weighed and measured diets.

"Establishment of a complete electrohydrotherapeutic department.

"Installation of a cardiograph, and organization of a heart clinic.

"Organization of a nutrition clinic.

"Segregation of diabetic and nephritic cases, to which Wards Q and R have been assigned, and a room for metabolic work.

"Segregation of eye, ear, nose and throat cases in Ward O.

"A new laboratory, fully equipped as a department for immunization, and remodeling of the third pavilion at the South Department, into cubicles and small rooms, for the proper isolation of communicable diseases."

Correspondence.

IN THE TIMES OF LETTSOM AND MARK AKENSIDE.

31 Massachusetts Avenue, Boston,
January 24, 1922.

Mr. Editor:

The following is from Pettigrew's "Memoirs of John Coakley Lettsom," London, 1817. The incident occurred just after Lettsom's arrival in London from his apprenticeship at Settle. In London, Lettsom was under the protection of the celebrated Fothergill, who became almost a parent to him.

"The distance of his apartment was convenient for attendance at St. Thomas Hospital, where he entered as Surgeon's dresser, under Benjamin Cowell, Esq.

"The other Surgeons were Mr. Baker and Mr. Smith, men of no great eminence. The Physicians were Akenside, Russell and Grieve. Lettsom was early fond of poetry and had read the 'Pleasures of Imagination' with admiration. He anticipated great pleasure in coming under the Author's notice, for, by a small premium, a Surgeon's pupil is admitted to the practice of the Physicians of the Hospital.

"Great, however, was his disappointment in finding Dr. Akenside the most supercilious and unfeeling Physician that he had hitherto known. If the poor, affrighted patients did not return a direct answer to his queries, he would often instantly discharge them from the Hospital. He evinced a particular disgust to females, and generally treated them with harshness. . . . .

"One leg of Dr. Akenside was considerably shorter than the other, which was in some measure remedied by the aid of a false heel. He had a pale, strumous countenance, but was always very neat and elegant in his dress. He wore a large white wig and carried a long sword. Lettsom never knew him to spit, nor would he suffer any pupil to spit in his presence. One of them once accidentally did so, yet standing at some distance behind him. The Doctor instantly spun round on his artificial heel, and hastily demanded, who was the person who spit in his face? Sometimes he would order some of the patients, on his visiting days, to precede him with brooms to clear the way, and prevent the patients from too nearly approaching him."

It is of interest that Dr. Lettsom was born one of twins (Nov. 22, 1744), and that he told Mr. Pettigrew, his biographer, that his mother had seven twin pregnancies, all the offspring being males. He and his twin brother were the last children born, and the only ones that lived.

In the delightful correspondence which passed between Dr. Cuming and Dr. Lettsom, Dr. Cuming took occasion to warn Dr. Lettsom of possible superficiality in diagnosis and examination, in the hurry and tension of his immense practice. (Lettsom frequently prescribed for fifty patients before breakfast.)

Dr. Cuming says, "When I hear of you, and others of the *primates* of the profession in London visiting your fifty or a hundred patients in a day I am thankful that I am not one of the number. . . . I often recall to memory an anecdote told by the late Dr. Sutherland of Bath. While at Paris, he attended *L'Hôpital de la Charité*. One day he accompanied the physician running through one of the wards to visit the patients, a friar trotting after him with his book in hand to minute down the prescriptions—the Doctor stops at a bed, and calls out to the person in it, with the utmost precipitation, *Toussez vous? suez vous? allez vous a la Selle?* then instantly to the friar, *Purgez le! Monsieur, il est mort*, replied the friar. *Diable! Allons!* said the Doctor, and galloped on with rapidity."

Very truly yours,
WM. PEARCE COUES, M.D.

INFLAMMATION OF THE MIDDLE EAR.

49 Pearl St., Worcester, Mass.,
January 24, 1922.

Mr. Editor:

In the JOURNAL of September 29, 1921, was published a description of the massotherapor with cases emphasizing suction in acute middle ears.

Probably the most feared form of inflammation of the middle ear, is caused by the snuffing of water from swimming, or nasal douching, through the eustachian tube into middle ear. Generally, if there is much fluid the pain is immediate and intense. Rarely is there relief, till paracentesis of m.t. is done. Therefore, the following case is of interest.

Mrs. C. E. P., 32 years, well nourished and showing severe pain. A member of the Women's swimming class of the Boys' Club. About 11 A. M., while diving snuffed up water. Intense pain in left ear, immediate and agonizing. Came directly for treatment. Physician not at home, would return at 1.30 P. M. Patient consulted another aurist, who advised paracentesis at once. Refused operation. Pain continued to increase.

Examined patient at 1.45 P. M. Bulging m.t., bluish gray color with prominent blood vessels. Velvet red color over periphery, and extending. Advised paracentesis for immediate relief, but thought the massotherapor might relieve, although slowly. Patient chose the latter method. Applied pure suction for five minutes with very little relief, then gradually pain became bearable, and bulging had perceptibly decreased. Continued for 15 minutes the suction method. Given ear drops, carbol-glycerine, 1–15. Telephones at 8 P.M., pain is gone, and at 8 A.M., next morning, comfortable, with good night. Excused from further treatment.

I am,

Very truly yours,
JAMES TAYLOR, JR., M.D.

CRITICISM OF MEDICAL SCHOOLS.

New York, January 29, 1922.

Mr. Editor:

Your editorial in the JOURNAL for January 26, 1922, is admirable in every particular and should be carefully and widely read. Especially is this true for all specialists. That they are useful and necessary in today's practice of medicine is unquestionable; but when they absorb, as they now do, much money and honor from the public, and the general practitioner is practically out of it very soon after he begins to take care of any patient, except the poorest, it is a sad commentary on the ignorant and contracted vision of those who should, who, indeed, do know better. In all consultations the internist should finally reign supreme, and his dictum is the one to follow. When I say consultant, I do not mean merely the great man who is called in when the patient is in a critical state. I refer also and much more to the family doctor, who, knowing fully the peculiarities and real needs of the patient, can give advice, or counsel, which is almost invariably most valuable, if it were simply followed. Alas, nowadays and more and more, it is wholly ignored, or put aside. Hence it is that the all-around good, conscientious practitioner has, indeed, become "rara avis"—more's the pity and shame of it!

BEVERLEY ROBINSON, M.D.

129 East 35th Street.

THE FLEXED SPICA TREATMENT OF HIP FRACTURES.

A Reply to Dr. Whitman.

167 Newbury St.,
Brockton, Mass.,
Jan. 14, 1922.

Mr. Editor:

Constructive criticism is the greatest stimulus to progress.

To "The many theoretical and practical advantages of the original method" of abduction over my modification, which Dr. Whitman has mentioned in his communication of December 16, 1921, I wish to make a brief reply.

The question of the method of reduction in the cases in which I have felt that it was a justifiable procedure, is one which permits of little argument between us. I am somewhat more conservative in regard to the treatment of impactions in aged patients than was my practice a few years ago. As I have stated in my articles, the mode of reduction which I have used differs in no essentials from that practiced by Dr. Whitman. The fragments of the neck are disengaged or "moulded" and the leg brought down in full extension to the length of the healthy member.

The efficiency of the maintenance of reduction with the thigh in a flexed position, as compared with full extension during the application of the spica is a debatable point.

After reduction, traction on the leg which was in the line of the trunk is gradually changed as the thigh is flexed to right angles with the trunk and the leg to right angles with the thigh. When preparations are complete for application of the flexed cast, traction is maintained by an assistant upward from the trunk and outward with the thigh in full abduction. The lower leg, flexed at right angles with the thigh, is used as a lever for traction upward on the thigh. The pelvis is firmly bandaged to the sacral support and the healthy leg held in full abduction and flexion so that the pelvis is not rotated toward the injured hip. The cast is then applied to the trunk and leg well down on the calf. When this part of the cast has "set" there is no possible chance of contraction of muscles of the thigh causing displacement of the fragments. It is granted that the assistant may not maintain a constant traction during the application of the cast and thus allow the fragments to become displaced. This is the personal equation which enters into treatment of all fractures. X-rays of many of my cases taken after the application of the cast have thus far failed to reveal this accident. A study of the muscles of the thigh in the position of right-angled flexion to the trunk reveals the fact that the power to pull the shaft up past the neck fragment is pretty much out of commission.

"The tendency of the thigh fragments to sink backward under the influence of gravity" in full extension has been mentioned in many other articles of Dr. Whitman. His method of correction is by applying the straight spica so that it acts as a splint.

In the flexed position the tense gluteus maximus and medius muscles automatically pull the trochanter forward and correct this difficulty, forming a natural splint. I have mentioned this fact in both of my articles on hip fractures. It is of importance in preventing eversion of the foot after union has occurred. Of the 60% of cases with good results in my series, none had eversion.

Lordosis of the lumbar spine and relaxation of sacral articulations have given me little concern in the use of the flexed cast. The sitting position and active exercise in a wheel chair have eliminated these complications.

Decubitus and pneumonia, I have mentioned as a cause of death in one case. This was a case which I did not attend after applying the cast and was the result of extreme neglect by the nurse. In none of the others where proper nursing care had been carried out were these complications present.

I might add that the nursing care of these cases is extremely simple. Aside from getting them up in a chair in the morning and back to bed at night, there is little else done for them by the nurse. Compared with the usual nursing care of a hip fracture case, there is a great saving in the amount of nursing required.

The question of the sitting *vs.* dorsal position in the treatment of hip fractures should be of interest to every surgeon who treats these cases.

Regardless of the method of treatment used in a given case, if symptoms of hypostatic congestion occur, the accepted treatment is to raise the patient's head. If this treatment does not clear up the symptoms, splints, etc., are removed and the patient set up in a chair. Many aged patients are saved by this treatment.

If we accept the old adage that "an ounce of prevention is worth a pound of cure," would not our patient, provided he survived, have been in better physical condition if he had had no congestion? Also, would he not have had a better promise of a leg with good function had the apparatus been undisturbed?

Dr. Whitman has answered these questions in many articles when he has advocated elevation of the head of the bed and frequent change of position. If I have made my point clear and it is accepted, may we go a step farther and compare the physical condition of the habitué of a Turkish bath with the man who frequents a gymnasium. The physical condition of the patient who is massaged and rolled about in bed as compared with the one who pushes a wheel chair about is somewhat analogous.

Dr. Whitman devised his method of abduction in extension for the treatment of hip fractures in children, which he adapted to aged patients. I have devised a modification of the method, flexion and the sitting position, for the aged and adapted it to any

age. Statistics of his results with patients past middle age would be of value in comparing the two methods.

Dr. Whitman has always been a champion of "efficient treatment" of hip fractures occurring at any age. His teaching has done much to dispel the old, firmly fixed practice of watchless waiting in the treatment of this injury in the aged.

While I cannot agree with some of the details of his method, the underlying principle of affording favorable opportunity to repair of the injury, I can subscribe to heartily.

G. A. MOORE.

LEGISLATIVE HEARINGS.

Several hearings on matters of interest to the medical profession have been held by the Legislative Committee on Public Health.

House 75. For the appointment of a special commission to investigate the feasibility of establishing a hospital for the treatment of surgical or non-pulmonary tuberculosis. The testimony submitted indicated very definitely the need of such an institution, but a preliminary study of this question having been made in 1915 and 1918, it seemed to be the consensus of opinion of those present that the State Department of Public Health could not take this work up at less expense and with the prospect of greater efficiency than would be possible under a new commission.

Senate 115. Relating to the registration of X-ray Technicians. They should be registered because the public may be better served. Some are practising medicine.

House 745. Relating to physical examination of hotel and restaurant employees. The testimony seemed to show that the expense would be out of proportion to possible benefits.

House 746. Relating to inspection of hotels, restaurants, storehouses and larders. The testimony indicated that Boards of Health have adequate authority at the present time.

House 747. Relating to the prevention of bubonic plague. The reasons for this legislation were presented by the Boston Board of Health and are repetitions of the arguments advanced last year. The Chairman of the Committee explained that the Committee reported favorably on a similar proposition but the Supervisor of Administration and the Legislature refused to endorse the recommendations of the Committee and nothing substantial was done. It was shown that bubonic plague is a definite menace in that it is generally prevalent throughout the world, and if we waited for it to be exhibited here through human attack it would be too late to effectively control it, for the human evidence does not usually appear until several months after the infected rats gain a foothold, for the fleas do not infect human beings until the rat dies or they become accidentally detached.

Mr. Pincers, a sanitary engineer in the U. S. Public Health Service, explained the details of the work and stated that if the State sees fit to enter upon this work the Federal Government will carry on all technical studies and furnish expert supervision.

Since the plague is now existing along the Gulf Coast and the South American countries, it may, according to precedent, be expected to invade Northern seaports. The mortality is very high and the danger is imminent.

House bills 745 and 746, relating to physical examination of persons employed in hotels and restaurants, and inspection of the same, have been given leave to withdraw.

The bill of Edna Lawrence Spencer (Senate 259), for protection of mothers and children during the maternity period, has been referred to the Committee of Public Health and Social Welfare, sitting jointly.

RESOLUTIONS ON MATERNITY LEGISLATION.

The following resolutions were unanimously passed at the last meeting of the Middlesex East District Medical Society:

WHEREAS, so-called maternity legislation is pending before the next session of the Massachusetts Legislature, and

WHEREAS, much of the present consideration of maternity legislation has been due to the persistently widespread statements that maternal mortality has nearly doubled since 1901, and that therefore the practice of obstetrics is in an intolerable condition, and

WHEREAS, these statements have even been promulgated and fostered by medical journals, departments of public health, etc., and

WHEREAS, such Vital Statistics, although steadily improving in their accuracy, are still wholly unreliable for comparisons, and

WHEREAS, the Massachusetts Department of Public Health, although still reiterating that maternal mortality is increasing, is unable to furnish causes for such increase except "ignorance," "poverty," and "some unfavorable factor" apparently unknown, and

WHEREAS, we, the Middlesex East District Medical Society, know of no cause for an increase in maternal mortality, but from our own knowledge do know that there has been marked improvement in the care given mothers and babes during the past twenty years,

THEREFORE, BE IT RESOLVED, that we earnestly and respectfully urge that the Massachusetts Senate and House of Representatives and the Governor of this Commonwealth consider with the greatest caution all proposed maternity legislation based upon the above-mentioned statistics.

A. E. SMALL, *Sec.*,
Middlesex East District Medical Society.
February 1, 1922.

RESEARCH CLUB OF THE HARVARD MEDICAL SCHOOL

At the meeting to be held in the Amphitheatre of Building A, on February 10th, at 12:30 o'clock, Dr. J. Aub will talk on "The Relation of the Adrenal Gland to Metabolism."

NOTICES.

STAFF CLINICAL MEETING, BOSTON CITY HOSPITAL.—Cheever Surgical Amphitheatre, Friday, February 10, 1922, at 7.45 o'clock, P.M. Topic: Recent Studies in the Physiology of the Internal Secretions. Speaker, Walter B. Cannon, M.D. The following men have been invited to open discussion: Otto Folin, M.D., Reid Hunt, M.D., William H. Robey, M.D., Edwin A. Locke, M.D., Frank H. Lahey, M.D. Open discussion. Physicians and medical students invited. Refreshments.

H. ARCHIBALD MISSEN, M.D.,
HALSEY B. LODER, M.D.,
Committee.

MASSACHUSETTS GENERAL HOSPITAL STAFF MEETING.—A clinical meeting of the Staff will be held in the Lower Out-Patient Amphitheatre on Monday, February 13th, at 8.15 P.M.

Program: (1) Recent Investigations in Epilepsy, Dr. Stanley Cobb and, possibly, Dr. Fritz Talbot; (2) The Perkinsonian Syndrome, Dr. Hugh Mella; (3) Differential Diagnosis between Gastric Ulcer and Tabetic Crises by X-ray, Dr. J. B. Ayer and Dr. F. Fremont-Smith; (4) Pernicious Anemia: Initial Symptoms from Cord Tumor, Dr. Henry R. Viets and Dr. James Townsend.

Doctors, nurses and medical students invited.

F. A. WASHBURN, M.D., *Director.*